

PATHOLOGICAL WASTE INCINERATORS – OPERATING PERMIT REQUIREMENTS

(For assistance, please contact EHS at (402) 472-4925, or visit our web site at <http://ehs.unl.edu/>)

Operation of the Pathological Incinerators on East Campus is subject to the terms and conditions of the Class II Synthetic Minor Air Contaminant Source Operating Permit issued by the Lincoln-Lancaster County Health Department (LLCHD). Table 1 provides a summary of air permit requirements for each incinerator. Refer to the EHS SOPs, ***Pathological Incinerator Operator - Environmental Compliance Responsibilities*** and ***Opacity of Emissions from Combustion Sources*** for additional procedures. Other permit conditions apply to other types of emission sources (e.g., boilers and emergency generators), which are beyond the scope of this SOP.

Table 1 - Summary of Air Permit Requirements

Operational Requirements	Incinerator Location	
	ARF	VDC
Auxiliary Fuel Limitations		
Allowed Fuel Types	Natural Gas	
Allowed Diesel Fuel Sulfur Content	Not Applicable	
Waste Incineration Restrictions		
Allowed Waste Types	Greater than or equal to 90%, by weight, "Type 4 waste" (pathological). And less than 10%, by weight, other wastes on a calendar quarter basis. See definitions.	
Maximum Waste Charge Weights (per manufacturer's recommendations)	290 lbs. per charge	588 lbs. per charge
Minimum Waste Incineration Burn Time	One hour per every 290 lbs. charged.	One hour per every 588 lbs. charged.

Operational Requirements	Incinerator Location	
	ARF	VDC
Estimating vs. Actual Weighing of Individual Waste Charge Weights	Individual waste charges must be recorded.	Estimations of individual waste charge weights based on process knowledge are acceptable and may be used to calculate the required incineration time to meet incineration rate maximums.
Burner Operation Requirements		
Afterburner (Secondary Burn Chamber) Required	Yes	
Afterburner Operating Temperature Requirements	Minimum hourly average temperature of 1200°F. This temperature is the compliance measure (per LLCHD operating permit) 1800°F set point (1600°F lower set range limit and 2000°F upper set range limit; per manufacturer's recommendations)	
Primary Burn Chamber Operating Temperature Requirements	Operate according to manufacturer's operating instructions.	
Pre-Charge Secondary Chamber Pre-Heat Time Minimum (per manufacturer specifications)	The secondary chamber must be pre-heated for 15 minutes prior to charging the incinerator with waste.	
Secondary Chamber Temperature Requirements (per LLCHD operating permit)	Temperatures in the secondary chamber must be maintained at a one-hour average temperature of 1200°F until all waste has been completely incinerated to an ash/bone-chip state.	
Secondary Chamber Continuous Temperature Monitor/Recorder	Secondary chamber temperatures must be recorded by a continuous temperature recording device through completion of waste combustion.	
Requirement to Calculate Hourly Secondary Chamber Temperature Averages	Not required. Because the secondary chamber temperatures are continuously recorded, operators are not required to calculate hourly averages. However, data on the continuous temperature charts must demonstrate a minimum hourly average of 1200°F is maintained during the entire waste combustion cycle.	
Visible Emissions Limitations and Monitoring Requirements		
Fugitive Visible Emissions Limits	All incinerator emissions must be vented through the single stack exhausting the incinerator. Fugitive emissions from other than the incinerator must not be visible beyond East Campus property lines.	
Stack Opacity Limit	20% for a six-minute average.	

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	ARF	VDC
Opacity/Visible Emissions Monitoring Records	<p>Operators must take a single six-minute opacity reading each time the incinerator is operated during the daytime, after startup is complete. If the average for this period exceeds 15%, two additional six-minute readings must be taken. Readings must be taken each time the units are operated and the six-minute averages must be recorded on appropriate forms.</p> <p>If the observer is unable to conduct opacity monitoring because of extreme weather conditions, or operations that occur after dark, the observer must note such conditions on the appropriate form. Opacity monitoring is not required during startups, shutdowns, or malfunctions.</p>	
Recordkeeping and Reporting Requirements		
Instructions	Operators must read the permit and operator manual.	
Recordkeeping Requirements	<ol style="list-style-type: none"> 1) Type and weight of each waste charge, and monthly waste charge totals, in pounds. 2) Date, start and end times, and secondary chamber temperature, and circle charts showing this data. 3) Calculated waste incineration rate in lbs/hour. 4) Copies of written operator certifications. 5) Copies of air permits. 6) Copies of service and repair records. 7) Copies of opacity reading records. 8) Records that demonstrate that less than 10% non Type 4 wastes were incinerated on a calendar quarter basis will be maintained at the EHS Office. 	
Due Date For Submission of Monthly Operational Records to EHS	15 th of each month for previous month's data.	
Manufacturer's Operating Instructions	Must be posted and maintained on site.	

Definitions/References

- **Waste Charge Weight** - Refers to the total pounds of waste charged into the incinerator each time the door is opened and new waste is added to the primary burn chamber. See procedures to be followed in Table 1 for weighing vs. estimating waste charge rates.
- **Burn-Cycle** - Refers to time in hours beginning when waste is charged until the primary/main chamber is charged again or shut off.
- **Incineration Rate** - Refers to the pounds per hour incinerated beginning with the time when the waste is charged until the time the waste combustion/burn-cycle is complete. The rate is calculated by dividing the total pounds charged by the total number of hours that the primary burn chamber operated.
- **“Type 4 Wastes” (pathological)** – Means material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding, animal feces, and animal feed if applicable.
- **“Other Wastes” (non-pathological)** – which are limited to less than 10% of the total, by weight, on a calendar quarter basis:
 - Feed sacks;
 - Packaging materials;
 - Rawhide, plastic, rubber & bone chew toys;
 - Pop/water bottles;
 - Used PPE:
 - Gloves including leather, latex, vinyl, & nitrile;
 - Hair nets and
 - Plastic booties
 - Ethidium bromide gels;
 - Used HEPA filters;
 - Plastic Petri dishes and agar plates;
 - And other specific wastes authorized, in writing, by EHS as acceptable for incineration.

Monthly Incineration Record: Month: _____ Year: _____

Facility: **UNIVERSITY OF NEBRASKA- LINCOLN**

Life Sciences Annex (LScA) formerly ARF

Incinerator Make: Consumat Model: C 120 P Facility Contact/Phone: _____

Air Permits: Class II Operating Permit Issued: February 25, 2009

Allowed Waste Materials: $\geq 90\%$ Type IV Pathological Waste and $< 10\%$ other wastes on a calendar quarter basis

Allowed Auxiliary Fuels: Natural gas

Maximum Allowable Incineration Rate: 290 lbs./hr. Maximum Allowable Waste Charge: 290 lbs. at intervals at least 1 hour apart

INSTRUCTIONS: For each waste charge during the month listed above, record one complete row of information.

IMPORTANT: A minimum of one hour of incineration time is required for each 290 lbs. indicated charged.

Note: Please send records for each month no later than the 15th of the following month to: Air Quality Specialist, Environmental Health & Safety, 3630 E. Campus Loop, Lincoln NE 68583-0824. Telephone: (402) 472-4925. Fax: (402) 472-9650. Keep a copy in the on-site incinerator records.

Date	Type of Animal or Waste Material P = Pathological NP = Non Pathological	Charge Weight (Pounds of Waste Charged) A	Burn Cycle Start Time (Time Waste Charged)	Time Burn Cycle Completed (Time of day of next waste charge or of daily primary burner shut down)	Total # of Hours in Burn Cycle B	Calculated Incineration Rate (Lbs/Hour) A ÷ B

Monthly Incineration Record: Month: _____ Year: _____

Facility: **UNL VETERINARY DIAGNOSTIC CENTER**

Incinerator Make: Conumat Model: C 225 P Facility Contact/Phone: _____

Air Permits: Class II Operating Permit Issued: February 25, 2009

Allowed Waste Materials: ≥90% Type IV Pathological Waste and <10% other wastes on a calendar quarter basis

Allowed Auxiliary Fuels: Natural gas

Maximum Allowable Incineration Rate: 588 lbs./hr. Maximum Allowable Waste Charge: 588 lbs. at intervals at least 1 hour apart

INSTRUCTIONS: For each waste charge during the month listed above, record one complete row of information.

IMPORTANT: A minimum of one hour of incineration time is required for each 588 lbs. indicated charged.

Note: Please send records for each month no later than the 15th of the following month to: Air Quality Specialist, Environmental Health & Safety, 3630 E. Campus Loop, Lincoln NE 68583-0824. Telephone: (402) 472-4925. Fax: (402) 472-9650.

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