Meadowcrest Cemetery Ph.: 313-891-2429

5800 E. Davison Detroit, Mi. 48212 Fax: 313-891-5050

In response to Department of Environmental Quality, Violation Notice of April 13, 2017

May 14, 2017

Dear Terseer Hemben,

We thank you for reviewing our documents and logs concerning our operation of our two crematories.

We are always aware that we should try to be in compliance with the many government bodies that oversee our business and every day to uphold procedures, conditions and rules pertaining to this business field. We hope that we can work to find a solution to your concerns.

The first item or violation brought forth is the excessive burning rate, it is our positon that the original owner and the State reviewing personnel left out the important word of "NOMINAL" when describing and determining burning rate and that capacity rate is more important than burning rate when operating a type 4 incinerator. When dealing with type 4, waste and designing unit's to accommodate type 4, square foot of hearth and volume of chambers is the overall determining factors for successful operation and burning rate; although important, is just a varying output which is not necessarily tied to performance of the incinerator.

When the previous owner and the State chose the rate of 100 lbs. per hour they removed the word "average" which was in the manufacturer's literature and test results and they also completely ignored the much more important factor which is total hourly capacity. The incinerator in question called #5 unit in our log has a conservative total hourly capacity of 270 lbs. This is based on the tables and formulas produced by the Incinerator Institute of America which was always the acceptable guideline for design and overall operation of an incinerator. In the manufacturers own test results they exceed their burning rate by twice the rate stated on their permit rates and still pass emission performance tests yet they arbitrarily chose a nominal rate of 100 lbs./hr. This is the "average rate" that in general practice we find it takes to complete a cremation of an average body it is not a fixed rate but a nominal rate. It is our position that the 100lb./hr. special condition is and should be a guideline in the operation of the incinerator. The purpose of the guideline is to let the operator know that if they load a 225lb. body, this on average will take 2 ¼ hours to complete and they should not look in or open doors until at least one hour has past as this could lead to emissions as the bulk of the material is being converted in this first hour. In general practice the operator would wait even longer perhaps 1 ¾ hours then if they find the content of the body completely finished then they would shut the unit down to begin the cooling cycle, at this point they are just using common sense and are not knowingly or willfully violating an operating condition. Due to the unique nature of this application for type 4 waste, which the unburnt solids are retrieved on an individual basis it only makes sense to shut a unit down when the individual material has been completely converted.

If this was a general type 4 waste (for example an animal shelter) then the operator would be instructed to load more waste immediately after the first hour and they would use the total capacity rate of 270 lb./hr. to reload the unit. Although we would instruct them to reduce their loads by 5 to 10 % (250 lbs.) sequentially every hour of operation as the remaining solids from the last load are reducing the volume

in the chamber. In this scenario they would be using the total capacity rate as their guideline not the average burning rate and this is how they in fact operate. The very nature of human cremation offers a less than homogenous waste composition and therefore makes a fixed burn rate difficult to ever achieve, so the manufacture lowers their rate to accommodate and provide a safe guideline to avoid excessive emissions but if the operation does not have visible emissions and exceeds burn rate then it is just an efficient cycle. A classic example would be a lean body or a body that retains more water than normal in both incidences they could be converted faster than a 100 lb. /hr. provide no visible emissions or excessive flow rates yet they could be in violation of burn rate. These are our reasons for interpreting the special condition as a guideline rate rather than a fixed rate.

We are including several documents that should help clarify our position concerning burning rates and cremation. Our parent company have been in the incineration business in Michigan for over 50 years, we always interpreted burn rates using the Incinerator Institute of America as our guideline to determine rates. Enclosed you will find a clean chart and a marked up engineer's chart converting to square feet of hearth, this figure coupled with volume ratio's determines parameters for layout of an incinerator. Also included is the "ALL" manufacturer specification sheet and their test data for their 1701 unit and their 1701 updated unit where they increase their burn rate to emphasis quick rate, their hearth square footage remains the same yet their burn rate doubles really just getting closer to their total capacity rate. We are also enclosing other manufacturers who are making the same claims and general practice statements. Please note that "All" shows a total capacity of 400 lbs./ hr. but chooses a burn rate of 100 lbs./hr. and states this is a nominal figure (average) based on completed cremation cycle and drying of bones.

Further to our defense of excessive burn rate is our log reflects when our burning cycle stops using natural gas not when the complete cycle is done. We log when we turn off the gas burner and not when we remove the cremains. Our operators are instructed to log the time when they turn off the burners not when they remove the cremains this would add at a minimum 15 minutes to each cycle and more commonly 30 minutes to each cycle. They are instructed to leave the cremains to finish combustion of any small embers or tissue that will burn on their own because the hearth is hot and we need to cool down. Additionally for their own safety we ask that they leave the cremains on the hearth as it is hotter for them to remove the cremains than if they waited 15 or 20 minutes. At the point they remove the cremains is when the cycle is completed and this is additionally why the burn rate is a guideline and should not be a fixed rate. Daily operation has shown us that we return more and a better quality of cremains if we let the cremains stay on the hearth for an additional time while also saving gas and allowing for better operating conditions for the employee. When the last cremation is completed during each day it is not removed until the next day so by your logic is the burn rate 12 hours as it is still on the hearth yet common sense would say "no". We are asked to provide a safe environment for our employees turning off the burners does not constitute completion of cycle the additional cool down, further drying of bones and then removal of cremains should be the rate and that is why it should be a nominal (average rate) and not fixed as it is stated in the special conditions.

In order to improve our operating procedures and to address the concern of the rate we will make the following changes. We have ordered and will install a larger scale base, our old one used a smaller base approximately 30" x 50", which made it difficult to weigh all carts and bodies and transfer difficult to

attain the weight. Our new scale will be 5 foot by 5 foot which will allow all but our largest cart to move on to the scale for safe quick readings. We will adjust our log to reflect when we remove the cremains and not when we shut down the unit's burners. For the end of the day cremation we will add an abbreviated notation to the log O.N. (overnight) rather than estimate when the unit finished. This will increase our average cycle time and better comply with the burn rate, although we cannot always guarantee it will meet the burn rate as the reasons were previously stated.

In response to the violations concerning excessive emissions it is our position that the special condition to be arbitrary and discriminatory in comparison to similar crematoriums. Since being aware of this special condition we have wondered what formula or thought process was used to create this special condition. Having worked with many crematories over the years we have never seen such a restrictive condition for this type of incinerator. The standard throughout the State and largely the Country is not more than one six –minute average of 20% opacity per hour so how is it that these units are restricted while the same or similar units throughout the State are given the more achievable condition mentioned above? If these units were given the same conditions then there would have been no violations and we would be operating under the same conditions as other similar businesses.

It is our position that the special condition "no visible emissions "is arbitrary and somewhat discriminatory with little or no chance of ever being attained with any crematory on the market today or in the past. We are very diligent about monitoring and correcting, as quickly as possible any emissions from either of the retorts. Only Unit #A is used for large cremations and we have and use manual water suppression when necessary to quickly and completely suppress and eliminate emissions. Although we may be in violation of "no emissions "we are not excessive or long in duration in most or all of these violations. Whenever emissions are observed immediate actions do take place, primary burners are reduced or shut off, air bleeds are opened to slow draft and water suppression is applied within a minute if the first two actions do not render satisfactory results.

We acknowledge that the probability of emissions can be reduced and were planning on implementing these actions prior to the current review by the D.E.Q. Both units in question have been in operation for many years and although we have repaired inner brick work on both, we intended to replace all brick in both primary chambers as they are worn out from normal spalling and thermal shock. During any operation cycle extreme expansion, contraction and thermal shock takes place, this allows for joints to loosen and seals to be broken within the walls. Replacing brick walls will allow for better sealing and controlling air on the units' interior and this will aid in controlling emissions. When the bricks and insulation are removed any broken joints in the steel casing will be addressed and sealed. Both unit's will have their door seals completely replaced, periodically we replace our door seals when they wear down or break, both door seals need replacing. The door frame and door on the "A" unit will be replaced, again any steel continually exposed to high temperatures will warp or misalign over a period of time and will need cutting and reworking to ensure tight sealing is attained. The stainless steel air manifold in the "A" unit will be replaced when the inner brick walls are removed for replacement. The manifold is buried between the outer steel wall and inner brick wall and can only be replaced when one wall is removed; usually the brick wall. Prior to these actions we will immediately replace our door seals on the existing doors in an attempt to eliminate some uncontrolled air. Although recently we replaced the complete secondary burner on the "A" unit we will add a hi/lo train to the existing setup to increase

gas flow when emissions are detected. After the door seals are installed the Unit labelled # 5 will be the first retort to have its lining replaced as this is weaker than the 7" walls on the "A" unit. Upon completion of Unit #5 relining unit #A will be undertaken. Each unit will take two weeks to complete. Part of our rebuild is to replace both existing control panels. Relays, push buttons, motor starts and temperature controllers will be replaced. We have purchased the base control panels and these will be changed out after the reline takes place and door replacement.

Some preparation must take place before either unit can be relined. The #5 unit will need some parts fabricated prior to work. Unit # A will also require some fabrication of parts before the reline can take place. We believe most of the work can be completed in 120 days. We were intending to rework our ventilation system and a normal roof repair during or shortly after this time. After the completion of these repairs there should be a significant reduction in emission incidences, please keep in mind we are constantly vigilant for emissions and are treating them as quickly as possible to eliminate the emission.

We wish to express our disappointment in your disingenuous program you have undertaken in your handling of this case. We conceit that we should strive to do better in our operations but your methods to enforce this are "got you" in nature while you claimed you are working with us and this in every aspect is disingenuous. Before we even have a chance for rebuttal and before you have even reviewed the engineering application you have placed it on the internet, we totally disagree with this method of operation. If in the end of this process you find you have misunderstood the data or this particular field of incineration can you guarantee the removal of the violation from the internet because it has the potential to damage a person's and a company's integrity. We have helped correct many, many emission violations over the years and we have never witnessed such cyber bullying tactics and back hand strong arming without some preliminary discussions, we are surprised and disappointed.

We hope you find our explanations for these violations acceptable and we look forward to your decision on our plan of action concerning reducing existing emissions. We ask that both special conditions for these permits to be changed to a practical standard for emissions and the word average or nominal be added to the special condition or the special condition be removed and we operate by the total capacity standard as this is the standard for all incinerator applications. We thank you for your consideration in this matter.

Sincerely

John Topolie

Article Submissions

1. – The formula sheet from the Incinerator Institute of America – This chart and formula describe how burning rates are derived although recent cremation tests actually exceed these guidelines, please observe the last paragraph on the sheet concerning type 4 waste.

2. This is the same chart worked out into square feet of hearth for each type of waste.

3. The All 1701 test data clearly stating that the 100lbs/hr. burn rate is a average rate not a fixed rate. We have highlighted the word average and or nominal.

4. The updated All 1701 test data with the same hearth area but larger secondary now being still rated at 100lbs/hr. but the test runs burning at twice the rate, this should be sufficient to prove our position as they are in violation of their own stated burn rate by your logic during all three tests. Please note the burn rate and the time interval in the tests along with the word nominal and the total capacity of charge.

5. Other Crematory manufacturer showing a variable burn rate with the wording nominal. They are clearly stating their burn rate is an average and then give a low and high point.

6. A normal permit condition taken from one of our clients files concerning opacity, we have these for most crematories we have worked on over the years , this is what we find for most operations of crematories. Why does one crematory have a different standard then the others if they are the same unit and both located in the same state?

ARTICLE #1.

MAXIMUM BURNING RATE IN LBS./SQ. FT./HR. OF VARIOUS TYPE WASTES

BURNING RATES ARE CALCULATED AS FOLLOWS:

MAXIMUM BURNING RATE IN LBS. PER SQ. FT. PER HR. FOR TYPES #0, #1, #2 and #3 WASTES, USING FACTORS AS NOTED IN THE FORMULA:

Br = FACTOR FOR TYPE WASTE x LOG OF CAPACITY/HR.

#0 WASTE FACTOR 13
#1 WASTE FACTOR 13
#2 WASTE FACTOR 10
#3 WASTE FACTOR 8
Br = MAX. BURNING RATE IN LBS./SQ. FT./HR.

I.E. — ASSUME INCINERATOR CAPACITY OF 100 LBS./HR., FOR TYPE #0 WASTE

Br = 13 (FACTOR FOR #0 WASTE) x LOG 100 (CAPACITY/HR.) = 13x2 = 26 LBS./SQ. FT./HR.

CAPACITY LBS./HR.	LOGARITHM	#0 WASTE* FACTOR 13	#1 WASTE* FACTOR 13	#2 WASTE FACTOR 10	#3 WASTE FACTOR 8	#4 WASTE** NO FACTOR
100	2.00	26	26	20	16	10
200	2.30	30	30	23	18	12
300	2.48	32	32	25	20	14
400	2.60	34	34	26	21	15
500	2.70	35	35	27	22	16
600	2.78	36	36	28	22	17
700	2.85	37	37	28	23	18
800	2.90	38	38	29	23	18
900	2.95	38	38	30	24	18
1000	3.00	39	39	30	24	18

*The density of the mixture and therefore the burning rate in lbs./sq. ft. of Type 0 Waste, or Type 1 Waste is affected if the trash or rubbish mixture contains more than 10% by weight of catalogues, magazines, or packaged papers.

**The maximum burning rate in lbs./sq. ft./hr. for Type 4 Waste depends to a great extent on the size of the largest animal to be incinerated. Therefore, whenever the largest animal to be incinerated exceeds 1/3 the hourly capacity of the incinerator, use a rating of 10 lbs./sq. ft./hr. for the design of the incinerator.

ARTICLE #2

MAXIMUM BURNING RATE IN LBS./SQ. FT./HR. OF VARIOUS TYPE WASTES

BURNING RATES ARE CALCULATED AS FOLLOWS:

MAXIMUM BURNING RATE IN LBS. PER SQ. FT. PER HR. FOR TYPES #0, #1, #2 and #3 WASTES, USING FACTORS AS NOTED IN THE FORMULA:

Br = FACTOR FOR TYPE WASTE x LOG OF CAPACITY/HR.

- #0 WASTE FACTOR 13
- #1 WASTE FACTOR 13
- #2 WASTE FACTOR 10
- #3 WASTE FACTOR 8

Br = MAX. BURNING RATE IN LBS./SQ. FT./HR.

I.E. — ASSUME INCINERATOR CAPACITY OF 100 LBS./HR., FOR TYPE #0 WASTE

Br = 13 (FACTOR FOR #0 WASTE) x LOG 100 (CAPACITY/HR.) = 13x2 = 26 LBS./SQ. FT./HR.

CAPACITY LBS./HR.	LOGARITHM	#0 WASTE* FACTOR 13	#1 WASTE* FACTOR 13	#2 WASTE FACTOR 10	#3 WASTE FACTOR 8	#4 WASTE** NO FACTOR
100	2.00	26	26	20	16	10
200	2.30	30	30	23	18	12
300	2.48	32	32	25	20	14
400	2.60	34	34	26	21	15
500	2.70	35	35	27	22	16
600	2.78	36	36	28	22	17
700	2.85	37	37	28	23	18
800	2.90	38	38	29	23	18
900	2.95	38	38	30	24	18
1000	3.00	39	39	30	24	18

THIS IS THE CAPACITY WHICH IS HOW WE DESIGN AND RUN A UNIT

*The density of the mixture and therefore the burning rate in lbs./sq. ft. of Type 0 Waste, or Type 1 Waste is affected if the trash or rubbish mixture contains more than 10% by weight of catalogues, magazines, or packaged papers.

**The maximum burning rate in lbs./sq. ft./hr. for Type 4 Waste depends to a great extent on the size of the largest animal to be incinerated. Therefore, whenever the largest animal to be incinerated exceeds 1/3 the hourly capacity of the incinerator, use a rating of 10 lbs./sq. ft./hr. for the design of the incinerator.

INTRODUCTION

ALL Crematory Corporation retained Environmental Research Group, Inc., to conduct a comprehensive evaluation of exhaust gas emissions from an ALL Crematory Retort,(Model L-1701). The particular pathological cremation unit which was tested was one installed at the Gatozzi Funeral Home in Cleveland, Ohio in January, 1983.

The purpose of this project was to provide emission data for a wide variety of potential air contaminants for use in requesting permits to install similar crematory units.

The test program included the cremation of five bodies (each of approximately 2-hour duration) during which tests were performed as outlined below.

TEST NUMBERS

Cremation Number	Particulate Carbon Monoxide	Sulfur Dioxide	Nitrogen Oxides	Total Hydrocarbons
1	1			
2	2			
3	3			
4		1,2	1-14	1,2
5		3		3

Auxiliary data included measurement of exhaust gas temperatures, stack gas flowrates, moisture content, and gaseous composition (determined by the Orsat procedure).

PROCESS DESCRIPTION

The ALL Crematory designs and manufactures crematory chambers to burn pathological wastes.

The firing process consists of a main burner and an afterburner, both fired with natural gas or propane. The flue gases are directed through a secondary settling chamber prior to being emitted to the atmosphere.

The time required for complete cremation of a case is dependent upon total weight. The overall average time required is approximately two hours; the three cases which were consumed during the testing program required an average burn of approximately two hours.

Process Description for the Operation of
Matthews Cremation Division
(formerly ALL CREMATORY)
Model 1701
CREMATOR

The Model 1701 cremator is designed to complete a typical cremation in 2 hours. This time does not include the preheat of the secondary chamber, which is typically 1/2 hour, or the cool-down period before the removal of the remains (1/2 hour). The cremator has a nominal burn rate of 100 lb/hr of remains and the associated containers. The cremator is an in-line multiple chamber design and is fired with natural or liquefied petroleum gas as an auxiliary fuel. It is designed to be manually loaded in batches.

Typically, the remains are loaded in the primary chamber and then the secondary chamber is preheated by the secondary burner for 30 minutes (if the chamber is cold). If the chamber is already hot a 15 minute preheat period is sufficient. The primary burner is then ignited to begin the cremation cycle. A cool-down period of at least 30 minutes is recommended at the end of the cremation cycle before removing the cremated remains and loading the next batch of remains.

The secondary chamber has a volume of 27 ft^3. It has one secondary burner which is adjusted to a maximum high fire setting of 1.2MM Btu/hr. It also has a low fire setting of approximately 0.5 MM Btu/hr.

The secondary chamber temperature is monitored by a digital controller which cycles the afterburner between the high and low fire settings to maintain the desired temperature set-point.

A thermocouple probe is located at the exit of the secondary chamber. The cremator performs best and is most fuel efficient with a secondary chamber temperature of 1300 to 1500°F.

The primary chamber has one primary burner which is adjusted to a maximum of 0.6MM Btu/hr. The chamber volume is 89 ft^3. The chamber temperature ranges from 500 °F at the beginning of the first cremation of the day to 1300 °F or more during successive cremations.

The chimney stack does not have a rain cap, so the flow is unobstructed.

March 10, 2000

SPECIFICATIONS- ALL Crematory Models 1701,1801, & 2001

1. Equipment Type	Model 1701, 1801, 2001
A. Underwriter's Laboratories Listing No.	52M8
2. Dimensions	
A. Maximum Length	15'-0" (4.58 m)
B. Maximum Width	6'-1 ¼" (1.86 m)
C. Maximum Height	7'-0 ¼" (2.14 m)
D. Chamber Loading Opening	35" W x 26 ¾" H
3. Weight	18,000 lbs. (8200 kg)
4. Utility/Air Requirements	
A. Gross Gas Input, Natural or LP Gas	2.0 million BTU/hr (2.1 million kJ/h)
Running Gas Pressure, Natural Gas	7 inches (180 mm) water column or greater
Running Gas Pressure, LP Gas	11 inches (280 mm) water column or greater
B. Electrical Supply	230 volt, 3Ø or 1Ø, 50/60 hz (other available)
C. Air Supply	2,000 cfm (57 standard m^3/min)
5. Nominal Incineration Capacity	100 lb/hr (45 kg/h) (Remains and Container)
6. Loading Capacity	400 lb/hr (180 kg/h)
7. Construction and Safety Standards	Underwriters Laboratories, Canadian Standards Association
8. Steel Structure Construction	
A. Frame	2" (51 mm) square tubing
B. Front/Rear Plates	3/8" (10 mm) plate
C. Floor Plates	3/16" (5 mm) plate
D. Outer Side Casing	12 (3 mm) gauge plate
E. Inner Side Casing	12 (3 mm) gauge plate
9. Stack Construction	
A. Outer Casing Wall	22 gauge (0.75 mm) galvanized steel, screwed seams
B. Air Compartment	2" (51 mm) air compartment
C. Inner Casing Wall	12 gauge (3 mm) type 304 s.s., welded seams
D. Inner Refractory Wall	4 ½" (110 mm) castable refractory
10. Main Chamber Door Construction	
A. Steel Shell	4" (102 mm) channel, 12 gauge (3 mm) plate
B. Inner Refractory	4 ½" (110 mm) insulating firebrick
11. Primary Chamber Wall Construction	
A. Outer Casing Wall	12 gauge (3 mm) plate
B. Inner Frame/Air Compartment	2" (51 mm) air compartment
C. Inner Casing Wall	12 gauge (3 mm) plate

TABLE 1. EMISSIONS TEST SUMMARY

Company: Southeastern Crematory/Family Funeral Care
Source: Human Crematory Unit B

	Run 1	Run 2	Run 3	Average
Date of Run	11/03/99	11/03/99	11/03/99	
Process Weight (lbs., body + container)	275	170	220	
Start Time (24-hr. clock)	1043	1410	1647	
End Time (24-hr. clock)	1146	1512	1750	
Vol. Dry Gas Sampled Meter Cond. (DCF)	34.711	32.093	30.966	
Gas Meter Calibration Factor	1.015	1.015	1.015	
Barometric Pressure at Barom. (in. Hg.)	30.24	30.19	30.17	
Elev. Diff. Manom. to Barom. (ft.)	0	0	0	
Vol. Gas Sampled Std. Cond. (DSCF)	34.696	31.351	30.459	
Vol. Liquid Collected Std. Cond. (SCF)	4.894	4.130	4.894	
Moisture in Stack Gas (% Vol.)	12.4	11.6	13.8	
Molecular Weight Dry Stack Gas	29.63	29.53	29.58	
Molecular Weight Wet Stack Gas	28.19	28.19	27.98	
Stack Gas Static Press. (in. H2O gauge)	-0.04	-0.03	-0.03	
Stack Gas Static Press. (in. Hg. abs.)	30.24	30.19	30.17	
Average Square Root Velocity Head	0.174	0.152	0.147	
Average Orifice Differential (in. H2O)	0.935	0.766	0.700	
Average Gas Meter Temperature (Deg. F)	83.1	91.4	90.3	
Average Stack Gas Temperature (Deg. F)	1128.6	1145.2	1145.7	
Pitot Tube Coefficient	0.84	0.84	0.84	
Stack Gas Vel. Stack Cond. (ft./sec.)	17.04	14.94	14.59	
Effective Stack Area (sq. ft.)	2.18	2.18	2.18	
Stack Gas Flow Rate Std. Cond. (DSCFM)	657	574	545	
Stack Gas Flow Rate Stack Cond. (ACFM)	2,231	1,956	1,909	
Net Time of Run (min.)	60	60	60	
Nozzle Diameter (in.)	0.601	0.601	0.601	
Percent Isokinetic	97.6	101.4	103.1	
Oxygen (%)	10.3	10.2	10.0	
Particulate Collected (mg.)	32.0	47.4	67.4	49.0
Particulate Emissions (lb./hr.)	0.080	0.114	0.160	0.118
Particulate Emissions (gr./DSCF)	0.014	0.023	0.034	0.024
Particulate Emissions (gr./DSCF @ 7% O2)	0.019	0.030	0.043	0.031
Allowable Part. Emissions (gr./DSCF @ 7% O2)				0.080
CO Emissions (lb./hr.)	0.051	0.005	0.012	0.023
CO Concentration (ppm)	17.9	1.8	5.0	8.2
CO Concentration (ppm @ 7% O2)	23.4	2.3	6.4	10.7
Allowable CO Concentration (ppm @ 7% O2)				100

Note: Standard conditions 68 Deg F, 29.92 in. Hg

RUN 1 HAS A BURN RATE OF 2.62 lbs/hr

RUN 2 HAS A BURN RATE OF 164 lbs/hr.

RUN 3 HAS A BURN RATE OF 209 lbs/hr

THEY CLAIM A BURN RATE OF 100 lbs/hr SO ARE THEY IN VIOLATION

PHOENIX 2 Human Cremator
Suitable for 2500-3000 cremations a year

ARTICLE 5 PAG 1 OF 1
THIS IS A 5 PAGE DOCUMENT

The human cremation range is designed as a two stage cremation unit comprising of a primary loading chamber that incorporates a hot hearth construction for the total destruction of the solid/liquid wastes. The unit is further complemented by an integral after burner system; this afterburner draws the hot gases from the primary chamber under the hearth through an integral refractory brick system. This ensures maximum gas turbulence/mixing is achieved thus aiding clean combusted gases. All gases then reside inside the after burner chamber for a minimum of 2 seconds at temperatures of 850-1150°C ensuring complete high temperature termination/oxidation of the gas combustion products.

The Addfield range of human cremators are CE Certified to BS EN 746-2 :1997 and are compliant with all emission regulations.

HOW CAN THE VARY THIS RATE? RATE VARIES IT IS AN AVERAGE

Machine Specifications: PHOENIX 2	
Primary Chamber Sizes:	
Internal Length (mm)	2600
Internal Width (mm)	1100
Internal Height (mm)	900
Chamber Volume (m^3)	2.574
Front Opening Door Size:	
Width (mm)	1100
Height (mm)	800
Number Of Buners	3

Machine Specifications: PHOENIX 2	
External Length (mm)	3200
External Width (mm)	2500
External Height (mm)	2400
-Including Door Cap (mm)	2900
Minumum Stack Height (mm)	5400
Stack Diameter OD (mm)	600
Maximum Body Weight (kg)	453
Weight (Approx. Tonnes)	17.2
CE Certified	YES
EU Regulations Compliant	YES
Max Load Capacity (kg) 1000 lbs	453 1000lbs
Nominal Burn Rate* (kg/hr)	50-75 110lbs TO 165 lbs
Thermal Capacity (kw/hr)	190
Power Supply 50/60hz	210/230v

Fuel Options:	
Diesel	No
LPG	Yes
N-Gas	Yes

† Based on general municipal waste streams
* Depending on the type waste stream being loaded and excludes heat up time.

We reserve the right to change the specification, dimensions and quality of materials from time to time, so long as the alteration is minor or an improvement to the said products.

Robust, Reliable...
...and Efficient

addfield
Incinerate • Cremate

Addfield Environmental Systems Limited
Hollies Park | Cannock | Staffordshire | WS11 1DB
www.addfield.co.uk | sales@addfield.co.uk | 01543 571280

the rules promulgated thereunder.

11. Except as provided in subrules (2) and (3) or unless the special conditions of the Permit to Install include an alternate opacity limit established pursuant to subrule (4) of R336.1301, a person shall not cause or permit to be discharged into the outer air from a process or process equipment a visible emission of density greater than the most stringent of the following. The grading of visible emissions shall be determined in accordance with R336.1303. **[R336.1301]**

* a) A six-minute average of 20 percent opacity, except for one six-minute average per hour of not more than 27 percent opacity.

b) A visible emission limit specified by an applicable federal new source performance standard.

c) A visible emission limit specified as a condition of this permit to install.

12. Collected air contaminants shall be removed as necessary to maintain the equipment at the required operating efficiency. The collection and disposal of air contaminants shall be performed in a manner so as to minimize the introduction of contaminants to the outer air. Transport of collected air contaminants in Priority I and II areas requires the use of material handling methods specified in R336.1370(2). **[R336.1370]**

* THIS IS THE TYPICAL OPACITY CONDITION WE FIND THROUGHOUT THE STATE!

THIS IS TAKEN FROM A SIMILAR CREMATORY OPERATION

— ARTICLE #6 WE HAVE MANY LIKE THIS. —