Date: 2/25/2020

New Jersey Department of Environmental Protection Reason for Application

Permit Being Modified

Permit Class: PCP **Number:** 10001

Description of Modifications:

PERMIT RENEWAL

- The two SPP units (E1 and E2) will continue operating with the same conditions as

PCP010001

- E1 & E2 already have circular chart recorders installed as specified in permit PCP010001

and will continue to use them for their operations.

Date: 2/25/2020

New Jersey Department of Environmental Protection Facility Profile (General)

Facility Name (AIMS): Evergreen Cemetery & Crematory	Facility ID (AIMS): 41955
Street 301 DAYTON ST Address: NEWARK, NJ 07114	State Plane Coordinates:

Y-Coordinate:

X-Coordinate:

Units:

Mailing PO BOX 312

Datum: Address: HILLSIDE, NJ 07205 **Source Org.:**

Source Type:

County: Essex

Human Cremation Location

Description:

Industry: **Primary SIC:**

Secondary SIC:

NAICS: 812220

Email: evergreen7940@aol.com

Date: 2/25/2020

New Jersey Department of Environmental Protection Facility Profile (General)

Contact Type: Owner (Current Primary)

Organization:

Name: Kenny Wallace

NJ EIN:

Title: Principle Foreman

Phone: (908) 352-7940 x

Fax: () - x

Other: () - x

Type:

New Jersey Department of Environmental Protection Facility Profile (Permitting)

Date: 2/25/2020

1. Is this facility classified as a small business by the USEPA?	Yes
2. Is this facility subject to N.J.A.C. 7:27-22?	No
3. Are you voluntarily subjecting this facility to the requirements of Subchapter 22?	No
4. Has a copy of this application been sent to the USEPA?	No
5. If not, has the EPA waived the requirement?	No
6. Are you claiming any portion of this application to be confidential?	No
7. Is the facility an existing major facility?	No
8. Have you submitted a netting analysis?	No
9. Are emissions of any pollutant above the SOTA threshold?	No
10. Have you submitted a SOTA analysis?	No
11. If you answered "Yes" to Question 9 and "No" to Question 10, explain why a SOTA analysis was not required	

12. Have you provided, or are you planning to provide air contaminant modeling?

Date: 2/25/2020

New Jersey Department of Environmental Protection Equipment Inventory

Equip. NJID	Facility's Designation	Equipment Description	Equipment Type	Certificate Number	Install Date	Grand- Fathered	Last Mod. (Since 1968)	Equip. Set ID
E1	UNIT 1	SPP	Incinerator			No		
E2	UNIT 2	SPP	Incinerator			No		

Date: 2/25/2020

New Jersey Department of Environmental Protection Emission Points Inventory

PT NJID	Facility's Designation	Description	Config.	Equiv. Diam.	Height (ft.)	Dist. to Prop.	Exhaus	t Temp.	(deg. F)	Exha	nust Vol. (a	cfm)	Discharge Direction	
NJID	Designation			(in.)	(11.)	Line (ft)	Avg.	Min.	Max.	Avg.	Min.	Max.	Direction	Set ID
PT1	STACK 01	SINGLE STACK	Round	20	17		1,000.0	800.0	1,200.0	2,300.0	2,100.0	2,600.0	Up	
PT2	STACK 02	SINGLE STACK	Round	20	17		1,000.0	800.0	1,200.0	2,300.0	2,100.0	2,600.0	Up	

Date: 2/25/2020

New Jersey Department of Environmental Protection Emission Unit/Batch Process Inventory

U 1 UNIT 1 Two SPP cremation units

UOS	Facility's	UOS	Operation	Signif.	Control	Emission	SCC(a)	Ann Oper. 1		VOC	Flo			mp. eg F)
NJID	Designation	Description	Type	Equip.	Device(s)	Point(s)	SCC(s)	Min.	Max.	Range	Min.	Max.	Min.	Max.
OS1	UNIT 1	Super Power Pak human cremator CREMATOR BURNING GAS	Normal - Steady State	E1		PT1		2,000.0	4,380.0		2,100.0	2,600.0	800.0	1,200.0
OS2	UNIT 2	Super Power Pak human cremator CREMATOR BURNING GAS	Normal - Steady State	E2		PT2		2,000.0	4,380.0		2,100.0	2,600.0	800.0	1,200.0

New Jersey Department of Environmental Protection Potential to Emit

Date: 2/25/2020

Subject Item: U1 UNIT 1
Operating Scenario: OS0 Summary

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
СО		1.29200000		1.29200000	tons/yr	No
HAPs (Total)		0.00000000		0.00000000	tons/yr	No
NOx (Total)		1.55900000		1.55900000	tons/yr	No
PM-10 (Total)		2.04520000		2.04520000	tons/yr	No
PM-2.5 (Total)		2.04520000		2.04520000	tons/yr	No
Pb		0.00000000		0.00000000	tons/yr	No
SO2		0.95040000		0.95040000	tons/yr	No
TSP		2.04520000		2.04520000	tons/yr	No
VOC (Total)		0.13100000		0.13100000	tons/yr	No

Subject Item: U1 UNIT 1
Operating Scenario: OS1 UNIT 1

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
СО		0.29500000		0.29500000	lb/hr	No
HAPs (Total)		0.00000000		0.00000000	lb/hr	No
NOx (Total)		0.35600000		0.35600000	lb/hr	No
PM-10 (Total)		0.46700000		0.46700000	lb/hr	No
PM-2.5 (Total)		0.46700000		0.46700000	lb/hr	No
Pb		0.00000000		0.00000000	lb/hr	No
SO2		0.21700000		0.21700000	lb/hr	No
TSP		0.46700000		0.46700000	lb/hr	No
VOC (Total)		0.02990000		0.02990000	lb/hr	No

New Jersey Department of Environmental Protection Potential to Emit

Date: 2/25/2020

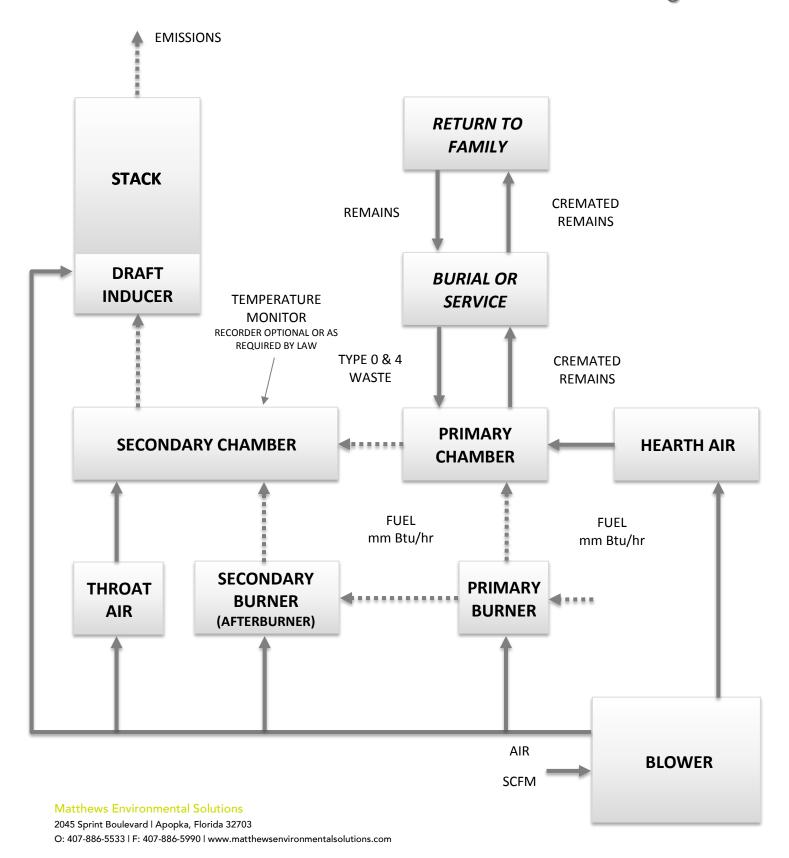
Subject Item: U1 UNIT 1
Operating Scenario: OS2 UNIT 2

Step:

Air Contaminant Category (HAPS)	Fugitive Emissions	Emissions Before Controls	Emissions After Controls	Total Emissions	Units	Alt. Em. Limit
СО		0.29500000		0.29500000	lb/hr	No
HAPs (Total)		0.00000000		0.00000000	lb/hr	No
NOx (Total)		0.35600000		0.35600000	lb/hr	No
PM-10 (Total)		0.46700000		0.46700000	lb/hr	No
PM-2.5 (Total)		0.46700000		0.46700000	lb/hr	No
Pb		0.00000000		0.00000000	lb/hr	No
SO2		0.21700000		0.21700000	lb/hr	No
TSP		0.46700000		0.46700000	lb/hr	No
VOC (Total)		0.02990000		0.02990000	lb/hr	No



Cremator Process Flow Diagram



Matthews

SPECIFICATIONS- Model Super Power-Pak

1.	Equipment Type A. Model No B. Underwriters Laboratories Listing and File No	IE43-SPP
2.	Dimensions A. Footprint B. Maximum Length C. Maximum Width D. Maximum Height E. Chamber Loading Opening.	12' – 2" (3.7 m) 8' -7" (2.62 m) 9' - 6¾" (2.91 m)
3.	Weight	32,000 lbs. (14,500 kg)
4.	Utility/Air Requirements A. Gross Gas Input, Natural or LP Gas	2,750,000 BTU/hr. (2,640,000 kJ/h) if operating temperature is greater then 1,600° F
	Running Gas Pressure, Natural Gas	11 inches (280 mm) water column or greater 230 volt, 3Ø or 1Ø, 50/60 hz (other available)
5.	Incineration Capacity	200 lbs./hr. (91 kg/h)
6.	Typical Loading Capacity of Waste Types	750 lbs. (340 kg/h)
7.	Construction and Safety Standards	Incineration Institute of America, Underwriters Laboratories, Canadian Standards Association
8.	Steel Structure Construction A. Frame	3/8" (10 mm) plate 3/16" (5 mm) plate 12 gauge (3 mm) plate
9.	Stack Construction A. Inner Wall B. Outer Wall	` ,
10.	Draft Nozzle Construction	Schedule 40 type 316 s.s., welded connections
11.	Main Chamber Door Construction A. Steel Shell B. Outer Refractory C. Inner Refractory	1" (25 mm) insulating block

SPECIFICATIONS- Model Super Power-Pak

12.	Primary Chamber Wall Construction A. Outer Casing Wall B. Inner Frame/Air Compartment C. Inner Casing Wall D. Outer Refractory Wall E. Inner Refractory Wall	2" (51 mm) air compartment 12 gauge (3 mm) sheet 5" (127 mm) insulating block (minimum)
13.	Secondary Chamber Wall Construction A. Outer Casing Wall B. Inner Frame/Air Compartment C. Inner Casing Wall D. Outer Refractory Wall E. Inner Refractory Wall	2" (51 mm) air compartment 12 gauge (3 mm) sheet 6" (150 mm) insulating block
14.	Refractory Temperature Ratings A. Standard Firebrick B. Insulating Firebrick C. Castable Refractory (Hearth) D. Castable Refractory E. Insulating Block F. Bonding Mortar	2,600° F. (1430° C) 2,550° F. (1370° C) 2,550° F. (1370° C) 1,900° F. (1040° C)
15.	Chamber Volumes (not including external flues, stacks or chimneys) A. Primary Chamber B. Secondary Chamber	
16.	Emission Control Features A. Secondary Chamber with Afterburner B. Opacity Monitor and Controller with Visual and Audible Alarms C. Auxiliary Air Control System D. Microprocessor Temperature Control System	Included Included
17.	Operating Temperatures A. Primary Chamber B. Secondary Chamber	
18.	Secondary Chamber Retention Time	> 2 second
	Ash Removal	Door functions as a heat shield. Sweep out beneath rear door into hopper that fills collection pan.
20.	Safety Interlocks A. High Gas Pressure B. Low Gas Pressure C. Blower Air Pressure D. Door Position E. Opacity	Optional Included Included

SPECIFICATIONS- Model Super Power-Pak

F. Motor Starter Function G. Chamber Temperature H. Motor Overload. I. Flame Quality. J. Burner Safe Start	Included Included Included Included
21.Burner Description	The nozzle mix burners used on this cremation equipment are industrial quality and designed for incinerator use.
22.Ultraviolet Flame Detection	Ultraviolet flame detection has proven to be the most reliable means of flame safety. The system is completely sealed in a quartz capsule to eliminate problems, caused by moisture and dust created in the cremation process, which effect flame rod detectors.
23. Operating Panel Indicating Lights	
A. Safe Run	Included
B. Door Closed	Included
C. Pollution Alarm	
D. Afterburner On (Secondary Burner)	
E. Cremation Burner On	
F. Temperature Control	
G. Afterburner (Secondary Burner) Reset	
H. Cremation Burner Reset	
I. Hearth Air	
J. Throat Air Off	Included
24 Automotic Times Functions	
24.Automatic Timer Functions A. Master Cycle	Included
B. Afterburner (Secondary Burner)	
C. Cremation Burner	
D. Low Fire Cremation Burner	
E. Hearth Air	
F. Throat Air	
G. Pollution Monitoring	
H. Afterburner (Secondary Burner) Prepurge	
I. Cremation Burner Prepurge	
J. Cool Down	
0. 000. 50	inordada.
25.Exterior Finish	
A. Primer	2 coats rust inhibiting
B. Finish	2 coats textured finish
26.Start-Up and Training	Startup of cremation equipment and training of operators to properly operate and maintain the equipment is performed on-site under actual operating conditions. Included is a comprehensive owner's manual, with details on the equipment, its components and proper operation.

Calculation Of Emissions

Estimated Emission Calculation

Matthews Environmental Solutions Crematory Incinerator Model IE43-SPP

Total Incenerator B	urn Capacity:	200 lb/hr of remains (type	and associated contai	ners (type 0)
Flue gas flow rate =	= 1100 dscfm	12 Hours/Day X	7 Days/Week X	52 Weeks/Year
(1	00 % Excess Air)	= 43	380 Hours/Year	

Total Emission Rate = Incinerator Burn Rate X Emission Factor

Sulfer Dioxide (SO₂)

_	200	lb/hr X	2.17	lb/ton X	1 ton 2000 lbs	.	=	0.217 lb/hr 0.4752 TPY
_		lb/hr X dscfm X	4.54E+05 60		1 ppmv 0.0283 m ³ /f ³ X	2.61 mg/m ³	=	20.21 ppmv
Nitrogen Ox	ide (NOx -	as Nitrog	jen Dioxide)	<u>.</u>				
	200	lb/hr X	3.56	lb/ton X	1 ton		=	0.356 lb/hr

Hydrocarbons (TOC/VOC - methane)

200 lb/hr X	2.99E-01 lb/ton X	1 ton		=	0.0299 lb/hr
		2000 lbs	-	=	0.0655 TPY
0.0299 lb/hr X	4.54E+05 mg/lb X	1 ppmv		=	11.18 ppmv
1100 dscfm X	60 min/hr X	0.0283 m ³ /f ³ X	0.65 mg/m ³		

Particulates (PM & PM₁₀)

 200 lb/hr X	4.67 lb/ton X	1 ton	=	0.467 lb/hr
		2000 lbs	=	1.0226 TPY
 0.467 lb/hr X	7.00E+03 gr/lb X		=	0.05 gr/dscf
1100 dscfm X	60 min/hr			

Carbon Monoxide (CO)

_	200 lb/hr X	2.95 lb/ton X	1 ton 2000 lbs		=	0.295 lb/hr 0.646 TPY
_	0.295 lb/hr X	4.54E+05 mg/lb X	1 ppmy		=	63.57 ppmv
	1100 dscfm X	60 min/hr X	$0.028 \text{ m}^3/\text{f}^3 \text{ X} = 1$.14 mg/m ³		

Notes

- 1. Incinerator Emissions based on EPA emissions from Table 2.3-1 and 2.3-2 of AP-42 (5th Edition)
- 2. All conversion factors from AP-42 Appendix A.

CREMATOR MASS BALANCE

Matthews Environmental Solutions SPP

THESE CALCULATIONS HAVE BEEN PREPARED TO EVALUATE THE COMBUSTION PROCESS IN THIS UNIT.

THE INCINERATOR INSTITUTE OF AMERICA HAS PUBLISHED THE FOLLOWING SPECIFICATIONS COVERING AVERAGE WASTES.

8500	1000
	1000
0.05	0.05
0.1	0.85
0.85	0.1
10	190
	0.1 0.85

8500	BTU/LB	x	0.075 LB/CF OF AIR	=	6.38 LB/LB BURNED
100	BTU/CF OF AIR*	-			

B. COMBUSTIBLES AND WATER VAPOR FROM CHART ABOVE = 0.95 LB/LB BURNED

C. TOTAL FLUE PRODUCT MASS PER LB BURNED = 7.33 LB/LB BURNED

2. MASS OF PRODUCTS OF COMBUSTION FROM BODY

A. COMBUSTION AIR

1000	BTU/LB	x	0.075 LB/CF OF AIR	=	0.75 LB/LB BURNED
100	BTU/CF OF AIR*	<u> </u>			

B. COMBUSTIBLES AND WATER VAPOR FROM CHART ABOVE = 0.95 LB/LB BURNED

C. TOTAL FLUE PRODUCT MASS PER LB BURNED = 1.70 LB/LB BURNED

SPECIFICATIONS						
PRIMARY BURNER FUEL CONSUMPTION (MMBTU/HR)	0.6					
SECONDARY BURNER FUEL CONSUMPTION (MMBTU/HR)	1.2					
ADDITIONAL SECONDARY AIR SUPPLIED (CFM)	200					
SEC. CHAMBER OPERATING TEMPERATURE (°F)	1600					
SECONDARY CHAMBER VOLUME (CU. FT)	104					
SEC. CHAMB. CROSS-SECTIONAL AREA (SQ. FT)	2.44					
FLAME PORT AREA (SQ. FT)	2.95					
MIXING BAFFLES AREA (SQ. FT)	1.36					

^{*}AIR AT STANDARD CONDITIONS

3. TOTAL FLUE PRODUCTS

A. MAXIMUM PRIMARY BURNER GAS USAGE

600000 BTU/HR x 4.8E-05 LBS/BTU = 28.8 LBS/HR

B. COMBUSTION AIR FOR PRIMARY BURNER

_	600000	BTU/HR x	1	х	0.075 LB/CF AIR =	450 LBS/HR
_	100	BTIT/CE VID	Rurner			

C. MAXIMUM SECONDARY BURNER GAS USAGE

1200000 BTU/HR x 4.8E-05 LBS/BTU = 58 LBS/HOUR

D. CO	MBUSTION AIR F	OR SECONDA	RY BURNER				
	1200000 BT	U/HR x		1	х	0.075 LB/CF AIR =	900 LBS/HOUR
	100 BTU	J/CF AIR		Burne	r		
E. PR	ODUCTS FROM T	YPE 0 WASTI	E (CONTAINE	R)			
7.	.33 LBS/LB BURNE	ED x	10	LB/HR E	BURN RATE	=	73 LBS/HOUR
F. PR	ODUCTS FROM T	YPE 4 WASTE	E (TISSUE)				
1.	.70 LBS/LB WASTE	E x	190	LB/HR E	BURN RATE	=	323 LBS/HOUR
G. AD	DITIONAL SECON	NDARY CHAME	BER COMBUS	STION A	IR (THROAT	AIR)	
120	000 CF/HR*	x	0.075	LB/CF A	AIR	=	900 LBS/HOUR
н. то	TAL FLUE PROD	DUCTS				=	2733 LBS/HOUR
2. VELOCITY AN	ID TIME CALCUL	<u>ATIONS</u>					
A. SCF	FM CALCULATION	N	(PRODUCT	S ASSUM	1ED TO HAVE	DENSITY CLOSE TO AIR)	
27	33 LBS/HR		35 STD. CU. 60 MIN/HR	FT/LB		=	608 SCFM
В. ТОТ	TAL PRODUCTS	ACFM @)	1600	°F		
20	060 °RANKINE	x	608.0	CFM		=	2363 ACFM
5	30 °RANKINE						
C. RE	TENTION TIME						
1	.04 CU. FT	х	60 SECONDS			=	2.64 SECONDS
23	63 ACFM		1 MINUTE				



P.O. BOX 312 1137 NORTH BROAD STREET HILLSIDE, NEW JERSEY 07205 TELEPHONE: (908) 352-7940 FACSIMILE: (908) 352-0273

SEP 19 2019

RECEIVED

September 12, 2019

NJ DEP 401 E. State Street PO Box 420 Mail Code 401-02 Trenton, NJ 08625-0420

TO WHOM IT MAY CONCERN:

Re: Facility ID: 41955

Evergreen Cemetery and Crematory, Hillside, NJ, would like to renew our existing cremation unit permits.

All technical files have been included in the enclosed CD submitted to us by Matthews Environmental Solutions.

Also enclosed is a signed and dated Certification by the responsible official along with a check in the amount of \$3,959.00 for the renewal cost.

Should you require any further information, please contact this office.

Very truly yours,

Doris J. Hawkins

Acting Executive Director

Encls.

CERTIFIED MAIL

CERTIFICATION

Evergreen Cemetery & Crematory

Responsible Official:

Facility ID: Facility Name:

41955

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attached documents and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fine or imprisonment or both, for sybmitting false, inaccurate or incomplete information. I certify under penalty of law that I believe the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties, including the possibility of fine or imprisonment or both, for submitting false, inaccurate or incomplete information. Date: 0911 Date: Date: Date: Date: Technical information of cremetion unit Signature: Signature: Signature: Signature: Signature: Name: Dans of Hawle Individuals with Direct Knowledge: Name: Michael Tricoche Section Being Certified: Section Being Certified: Section Being Certified: Section Being Certified: Name: Name: Name:

SEP 1.9 2019

RECEIVED