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.
### Facility Profile (General)

**Facility Name (AIMS):** Evergreen Cemetery & Crematory

**Street:** 301 DAYTON ST  
**Address:** NEWARK, NJ 07114

**Mailing:** PO BOX 312  
**Address:** HILLSIDE, NJ 07205

**County:** Essex

**Location:** Human Cremation

**Description:**

<table>
<thead>
<tr>
<th>State Plane Coordinates:</th>
<th>Industry:</th>
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</thead>
<tbody>
<tr>
<td>X-Coordinate:</td>
<td>Primary SIC:</td>
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<tr>
<td>Y-Coordinate:</td>
<td>Secondary SIC:</td>
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<tr>
<td>Units:</td>
<td>NAICS:</td>
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<tr>
<td>Datum:</td>
<td>812220</td>
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**Source Org.:**

**Source Type:**

**Facility ID (AIMS):** 41955

**Primary SIC:**

**Secondary SIC:**
Contact Type: Owner (Current Primary)
Organization: Evergreen Cemetery & Cremonary
Name: Kenny Wallace
Title: Principle Foreman
Phone: (908) 352-7940 x
Fax: ( ) - x
Other: ( ) - x
Email: evergreen7940@aol.com

Org. Type: New Jersey Department of Environmental Protection Facility Profile (General)
NJ EIN:
Mailing Address: PO BOX 312 Hillside, NJ 07205

New Jersey Department of Environmental Protection
Facility Profile (Permitting)

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?  No
New Jersey Department of Environmental Protection  
Equipment Inventory

<table>
<thead>
<tr>
<th>Equip. NJID</th>
<th>Facility's Designation</th>
<th>Equipment Description</th>
<th>Equipment Type</th>
<th>Certificate Number</th>
<th>Install Date</th>
<th>Grand-Fathered</th>
<th>Last Mod. (Since 1968)</th>
<th>Equip. Set ID</th>
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<tbody>
<tr>
<td>E1</td>
<td>UNIT 1</td>
<td>SPP</td>
<td>Incinerator</td>
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<td></td>
<td>No</td>
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<td>E2</td>
<td>UNIT 2</td>
<td>SPP</td>
<td>Incinerator</td>
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<td>No</td>
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</tbody>
</table>
# EVERGREEN CEMETERY & CREMATORY (41955)

**PCP190001**

**New Jersey Department of Environmental Protection**  
**Emission Points Inventory**  

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</table>
## New Jersey Department of Environmental Protection
### Emission Unit/Batch Process Inventory

**EVERGREEN CEMETERY & CREMATORY (41955)**

**Date:** 2/25/2020

**PCP190001**

**U 1  UNIT 1  Two SPP cremation units**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>OS1</td>
<td>UNIT 1</td>
<td>Super Power Pak human cremator Cremator Burning Gas</td>
<td>Normal - Steady State</td>
<td>E1</td>
<td>PT1</td>
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New Jersey Department of Environmental Protection
Potential to Emit

Subject Item: U1 UNIT 1
Operating Scenario: OS0 Summary

<table>
<thead>
<tr>
<th>Air Contaminant Category (HAPS)</th>
<th>Fugitive Emissions</th>
<th>Emissions Before Controls</th>
<th>Emissions After Controls</th>
<th>Total Emissions</th>
<th>Units</th>
<th>Alt. Em. Limit</th>
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</thead>
<tbody>
<tr>
<td>CO</td>
<td>1.29200000</td>
<td>1.29200000</td>
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<td>tons/yr</td>
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<td>tons/yr</td>
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Subject Item: U1 UNIT 1
Operating Scenario: OS1 UNIT 1

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<td>lb/hr</td>
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New Jersey Department of Environmental Protection
Potential to Emit

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

<table>
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<tr>
<th>Air Contaminant Category (HAPS)</th>
<th>Fugitive Emissions Before Controls</th>
<th>Emissions After Controls</th>
<th>Total Emissions</th>
<th>Units</th>
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<tbody>
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<td>lb/hr</td>
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</tr>
</tbody>
</table>
Cremator Process Flow Diagram

- Stack
- Draft Inducer
- Secondary Chamber
- Throat Air
- Secondary Burner (Afterburner)
- Primary Chamber
- Primary Burner
- Hearth Air
- Blower
- Emissions
- Return to Family
- Remains
- Cremated Remains
- Type 0 & 4 Waste

- Temperature Monitor Recorder Optional or as Required by Law

- Fuel mm Btu/hr
- Air SCFM

Mathews Environmental Solutions
2045 Sprint Boulevard | Apopka, Florida 32703

Rev 07.27.18
# SPECIFICATIONS - Model Super Power-Pak

1. **Equipment Type**
   - Super Power-Pak
   - **Model No.** IE43-SPP
   - **Underwriters Laboratories Listing and File No.** 87E8; MH14647

2. **Dimensions**
   - **Footprint**: 10’ – 0” x 7’ – 4”
   - **Maximum Length**: 12’ – 2” (3.7 m)
   - **Maximum Width**: 8’ - 7” (2.62 m)
   - **Maximum Height**: 9’ - 6¾” (2.91 m)
   - **Chamber Loading Opening**: 33” H x 39” W (838 mm x 991 mm)

3. **Weight**
   - 32,000 lbs. (14,500 kg)

4. **Utility/Air Requirements**
   - **Gross Gas Input, Natural or LP Gas**: 2,000,000 BTU/hr. (2,100,000 kJ/h)
     - **Running Gas Pressure, Natural Gas**: 11 inches (280 mm) water column or greater
     - **Running Gas Pressure, LP Gas**: 11 inches (280 mm) water column or greater
   - **Electrical Supply**: 230 volt, 3Ø or 1Ø, 50/60 hz (other available)
   - **Air Supply**: 2,500 cfm (70 standard m³/min)

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**
   - **Frame**: 2” (51 mm) square tubing
   - **Front/Rear Plates**: 3/8” (10 mm) plate
   - **Floor Plates**: 3/16” (5 mm) plate
   - **Outer Side Casing**: 12 gauge (3 mm) plate
   - **Inner Side Casing**: 12 gauge (3 mm) plate

9. **Stack Construction**
   - **Inner Wall**: 4 1/2” (110 mm) insulating firebrick or castable
   - **Outer Wall**: 12 gauge (3 mm) sheet, 304 s.s., welded seams (unlined stack available)

10. **Draft Nozzle Construction**
    - Schedule 40 type 316 s.s., welded connections

11. **Main Chamber Door Construction**
    - **Steel Shell**: 3/16” (5 mm) steel, welded with reinforcement
    - **Outer Refractory**: 1” (25 mm) insulating block
    - **Inner Refractory**: 4½” (110 mm) insulating firebrick
SPECIFICATIONS - Model Super Power-Pak

12. Primary Chamber Wall Construction
   A. Outer Casing Wall ........................................... 12 gauge (3 mm) sheet
   B. Inner Frame/Air Compartment ......................... 2" (51 mm) air compartment
   C. Inner Casing Wall .......................................... 12 gauge (3 mm) sheet
   D. Outer Refractory Wall .................................... 5" (127 mm) insulating block (minimum)
   E. Inner Refractory Wall ..................................... 4½" (110 mm) firebrick

13. Secondary Chamber Wall Construction
   A. Outer Casing Wall ........................................... 12 gauge (3 mm) sheet
   B. Inner Frame/Air Compartment ......................... 2" (51 mm) air compartment
   C. Inner Casing Wall .......................................... 12 gauge (3 mm) sheet
   D. Outer Refractory Wall .................................... 6" (150 mm) insulating block
   E. Inner Refractory Wall ..................................... 4½" (110 mm) firebrick

14. Refractory Temperature Ratings
   A. Standard Firebrick .......................................... 3,100° F. (1700° C)
   B. Insulating Firebrick ........................................ 2,600° F. (1430° C)
   C. Castable Refractory (Hearth) ............................ 2,550° F. (1370° C)
   D. Castable Refractory ........................................ 2,550° F. (1370° C)
   E. Insulating Block ............................................ 1,900° F. (1040° C)
   F. Bonding Mortar .............................................. 3,200° F. (1760° C)

15. Chamber Volumes (not including external flues, stacks or chimneys)
   A. Primary Chamber ........................................... 71 cubic feet (2.0 m³)
   B. Secondary Chamber .......................................... 104 cubic feet (2.9 m³)

16. Emission Control Features
   A. Secondary Chamber with Afterburner ............... Included
   B. Opacity Monitor and Controller with Visual and Audible Alarms .......... Included
   C. Auxiliary Air Control System ............................ Included
   D. Microprocessor Temperature Control System .... Included

17. Operating Temperatures
   A. Primary Chamber ........................................... 1,200° F. - 1,800° F. (650° C - 1000° C)
   B. Secondary Chamber ........................................ 1,400° F. - 1,800° F. (760° C - 1000° C) as required

18. Secondary Chamber Retention Time .................... > 2 second

19. 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 .......................................... Optional
   B. Low Gas Pressure .......................................... Optional
   C. Blower Air Pressure ........................................ Included
   D. Door Position ................................................ Included
   E. Opacity ...................................................... Included
SPECIFICATIONS- Model Super Power-Pak

F. Motor Starter Function ........................................ Included
G. Chamber Temperature ........................................ Included
H. Motor Overload ................................................ Included
I. Flame Quality .................................................... Included
J. Burner Safe Start ................................................ 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 ............................................... Included
   D. Afterburner On (Secondary Burner) ....................... Included
   E. Cremation Burner On ....................................... Included
   F. Temperature Control ....................................... Included
   G. Afterburner (Secondary Burner) Reset ................. Included
   H. Cremation Burner Reset .................................... Included
   I. Hearth Air ..................................................... Included
   J. Throat Air Off ............................................... Included

24. Automatic Timer Functions
   A. Master Cycle ................................................ Included
   B. Afterburner (Secondary Burner) ......................... Included
   C. Cremation Burner .......................................... Included
   D. Low Fire Cremation Burner ............................... Included
   E. Hearth Air .................................................... Included
   F. Throat Air ..................................................... Included
   G. Pollution Monitoring ...................................... Included
   H. Afterburner (Secondary Burner) Prepurge .......... Included
   I. Cremation Burner Prepurge .............................. Included
   J. Cool Down .................................................... Included

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 Burn Capacity: 200 lb/hr of remains (type 4) and associated containers (type 0)
Flue gas flow rate = 1100 dscfm 12 Hours/Day X 7 Days/Week X 52 Weeks/Year
(100 % Excess Air) = 4380 Hours/Year

Total Emission Rate = Incinerator Burn Rate X Emission Factor

Sulfur Dioxide (SO₂)

\[
\begin{align*}
200 \text{ lb/hr} & \times 2.17 \text{ lb/ton} \times 1 \text{ ton} &= 0.217 \text{ lb/hr} \\
2000 \text{ lbs} & = 0.4752 \text{ TPY} \\
0.217 \text{ lb/hr} & \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv} &= 20.21 \text{ ppmv} \\
1100 \text{ dscfm} & \times 60 \text{ min/hr} \times 0.0283 \text{ m}^3/\text{ft}^3 \times 2.61 \text{ mg/m}^3
\end{align*}
\]

Nitrogen Oxide (NOx - as Nitrogen Dioxide)

\[
\begin{align*}
200 \text{ lb/hr} & \times 3.56 \text{ lb/ton} \times 1 \text{ ton} &= 0.356 \text{ lb/hr} \\
2000 \text{ lbs} & = 0.7796 \text{ TPY} \\
0.356 \text{ lb/hr} & \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv} &= 46.52 \text{ ppmv} \\
1100 \text{ dscfm} & \times 60 \text{ min/hr} \times 0.0283 \text{ m}^3/\text{ft}^3 \times 1.88 \text{ mg/m}^3
\end{align*}
\]

Hydrocarbons (TOC/VOC - methane)

\[
\begin{align*}
200 \text{ lb/hr} & \times 2.99E-01 \text{ lb/ton} \times 1 \text{ ton} &= 0.0299 \text{ lb/hr} \\
2000 \text{ lbs} & = 0.0655 \text{ TPY} \\
0.0299 \text{ lb/hr} & \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv} &= 11.18 \text{ ppmv} \\
1100 \text{ dscfm} & \times 60 \text{ min/hr} \times 0.0283 \text{ m}^3/\text{ft}^3 \times 0.65 \text{ mg/m}^3
\end{align*}
\]

Particulates (PM & PM₁₀)

\[
\begin{align*}
200 \text{ lb/hr} & \times 4.67 \text{ lb/ton} \times 1 \text{ ton} &= 0.467 \text{ lb/hr} \\
2000 \text{ lbs} & = 1.0226 \text{ TPY} \\
0.467 \text{ lb/hr} & \times 7.00E+03 \text{ gr/lb} \times 1 \text{ ppmv} &= 0.05 \text{ gr/dscf} \\
1100 \text{ dscfm} & \times 60 \text{ min/hr}
\end{align*}
\]

Carbon Monoxide (CO)

\[
\begin{align*}
200 \text{ lb/hr} & \times 2.95 \text{ lb/ton} \times 1 \text{ ton} &= 0.295 \text{ lb/hr} \\
2000 \text{ lbs} & = 0.646 \text{ TPY} \\
0.295 \text{ lb/hr} & \times 4.54E+05 \text{ mg/lb} \times 1 \text{ ppmv} &= 63.57 \text{ ppmv} \\
1100 \text{ dscfm} & \times 60 \text{ min/hr} \times 0.0283 \text{ m}^3/\text{ft}^3 \times 1.14 \text{ mg/m}^3
\end{align*}
\]

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.
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.

<table>
<thead>
<tr>
<th>WASTE TYPE</th>
<th>TYPE 0</th>
<th>TYPE 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTU PER POUND</td>
<td>8500</td>
<td>1000</td>
</tr>
<tr>
<td>POUND ASH PER POUND WASTE</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>POUND MOISTURE PER POUND WASTE</td>
<td>0.1</td>
<td>0.85</td>
</tr>
<tr>
<td>POUND COMBUSTIBLES PER POUND WASTE</td>
<td>0.85</td>
<td>0.1</td>
</tr>
<tr>
<td>HOURLY CONSUMPTION OF WASTE (LBS)</td>
<td>10</td>
<td>190</td>
</tr>
</tbody>
</table>

1. MASS OF PRODUCTS OF COMBUSTION FROM CONTAINER

   A. COMBUSTION AIR

\[
\frac{8500 \text{ BTU/LB}}{100 \text{ BTU/CF OF AIR}} \times 0.075 \text{ LB/CF OF AIR} = 6.38 \text{ LB/LB BURNED}
\]

   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

\[
\frac{1000 \text{ BTU/LB}}{100 \text{ BTU/CF OF AIR}} \times 0.075 \text{ LB/CF OF AIR} = 0.75 \text{ LB/LB BURNED}
\]

   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

<table>
<thead>
<tr>
<th>SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIMARY BURNER FUEL CONSUMPTION (MMBTU/HR)</td>
</tr>
<tr>
<td>SECONDARY BURNER FUEL CONSUMPTION (MMBTU/HR)</td>
</tr>
<tr>
<td>ADDITIONAL SECONDARY AIR SUPPLIED (CFM)</td>
</tr>
<tr>
<td>SEC. CHAMBER OPERATING TEMPERATURE (°F)</td>
</tr>
<tr>
<td>SECONDARY CHAMBER VOLUME (CU. FT)</td>
</tr>
<tr>
<td>SEC. CHAMB. CROSS-SECTIONAL AREA (SQ. FT)</td>
</tr>
<tr>
<td>FLAME PORT AREA (SQ. FT)</td>
</tr>
<tr>
<td>MIXING BAFFLES AREA (SQ. FT)</td>
</tr>
</tbody>
</table>

*AIR AT STANDARD CONDITIONS

3. TOTAL FLUE PRODUCTS

   A. MAXIMUM PRIMARY BURNER GAS USAGE

\[
600000 \text{ BTU/HR} \times 4.8E-05 \text{ LBS/BTU} = 28.8 \text{ LBS/HR}
\]

   B. COMBUSTION AIR FOR PRIMARY BURNER

\[
\frac{600000 \text{ BTU/HR}}{100 \text{ BTU/CF AIR}} \times 1 \times 0.075 \text{ LB/CF AIR} = 450 \text{ LBS/HR}
\]

   C. MAXIMUM SECONDARY BURNER GAS USAGE

\[
1200000 \text{ BTU/HR} \times 4.8E-05 \text{ LBS/BTU} = 58 \text{ LBS/HOUR}
\]
D. COMBUSTION AIR FOR SECONDARY BURNER

\[
1200000 \, \text{BTU/HR} \times \frac{1}{100} \, \text{BTU/CF AIR} \times 0.075 \, \text{LB/CF AIR} = 900 \, \text{LBS/HOUR}
\]

E. PRODUCTS FROM TYPE 0 WASTE (CONTAINER)

\[7.33 \, \text{LBS/LB BURNED} \times 10 \, \text{LB/HR BURN RATE} = 73 \, \text{LBS/HOUR}\]

F. PRODUCTS FROM TYPE 4 WASTE (TISSUE)

\[1.70 \, \text{LBS/LB WASTE} \times 190 \, \text{LB/HR BURN RATE} = 323 \, \text{LBS/HOUR}\]

G. ADDITIONAL SECONDARY CHAMBER COMBUSTION AIR (THROAT AIR)

\[12000 \, \text{CF/HR} \times 0.075 \, \text{LB/CF AIR} = 900 \, \text{LBS/HOUR}\]

H. TOTAL FLUE PRODUCTS

\[2733 \, \text{LBS/HOUR}\]

2. VELOCITY AND TIME CALCULATIONS

A. SCFM CALCULATION

(PRODUCTS ASSUMED TO HAVE DENSITY CLOSE TO AIR)

\[
2733 \, \text{LBS/HR} \times \frac{13.35 \, \text{STD. CU. FT/LB}}{60 \, \text{MIN/HR}} = 608 \, \text{SCFM}
\]

B. TOTAL PRODUCTS ACFM @ 1600 °F

\[
\frac{2060 \, ^* \text{RANKINE}}{530 \, ^* \text{RANKINE}} \times 608.0 \, \text{CFM} = 2363 \, \text{ACFM}
\]

C. RETENTION TIME

\[
104 \, \text{CU. FT} \times 60 \, \text{SECONDS} = 2.64 \, \text{SECONDS}
\]

\[
2363 \, \text{ACFM} \times 1 \, \text{MINUTE}
\]
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

Facility ID: 41955
Facility Name: Evergreen Cemetery & Crematory

Responsible Official:

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 submitting false, inaccurate or incomplete information.

Name: Doris J. Hawkins  Signature: [Signature]  Date: 09/12/19

Individuals with Direct Knowledge:

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.

Name: Michael Tricco  Signature: [Signature]  Date: 08/26/2019
Section Being Certified: Technical information of cremation unit

Name:  Signature:  Date: / / 
Section Being Certified: 

Name:  Signature:  Date: / / 
Section Being Certified: 

Name:  Signature:  Date: / / 
Section Being Certified: 

SEP 19 2019
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