Facultatieve Technologies

Cremation & Incineration Equipment

West Virginia Department of Environmental Protection

Division of Air Quality

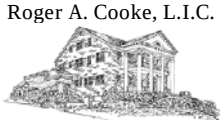
Cooke & Pauley Funeral Home dba Cooke Funeral Homes

Cooke Pet Crematorium, LLC

2002 20th Street
Nitro, West Virginia

Cooke Pet Crematorium

Roger A. Cooke, L.I.C.



2005 20th St.
P.O. Box 145
Nitro, WV 25143
304-755-3334
304-755-8375 fax

July 10, 2015
Ms. Beverly D. McKeome
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

RE: Application for NSR Permit
Cooke & Pauley Funeral Home, Inc.
Nitro, West Virginia

Dear Ms. McKeome;

Please find enclosed the Application for NSR Permit for Cooke Pet Crematorium, LLC. located at 2005 20th Street, Nitro, WV. This permit is for a modification of the current permit (R13-2372B) as we are planning on adding a second animal cremation system to our facility. This unit would be the primary unit and the existing animal cremator would only be used as a back-up. Our reasoning behind this decision is that the Facultatieve Technologies Cremator we have purchased provides a greatly advanced technology for cremation including a vast reduction in the use of fossil fuels thus the reduction of emissions to the environment, reduction of cremation times and increased health and safety protection for our employees, our most valued asset.

Our representative from Facultatieve Technologies, Mr. Ernie Kassoff has provided us with this manual which has all items required for the application. The package contains all items as directed in the Application for NSR Permit, index with tabs for easy reference. We will assume that we have provided all of the necessary information you require to complete the engineering evaluation and issue a permit for this modification. We have enclosed our permit fee and one (4) hard copy and two (2) electronic copies of the permit application as directed.

Please feel free to contact me with any questions regarding our site or Mr. Kassoff with technical questions. He can be reached via:
cell phone 330.242.6901
email: ernie.kassoff@facultatieve-technologies-usa.com

Best regards,

Roger Cooke
Cooke Pet Crematorium, LLC

INDEX

West Virginia Department of Environmental Protection
Division of Air Quality

Application for NSR Permit

Section 1		**Application for NSR Permit**	
Section 2	Attachment A	Business Certificate	
Section 3	Attachment B	Maps	
Section 4	Attachment C	Installation and Start-up Schedule	
Section 5	*Attachment D*	*Regulatory Discussion*	*Not Used*
Section 6	Attachment E	Plot Plan	
Section 7	Attachment F	Detailed Process Flow Diagrams	
Section 8	Attachment G	Process Description	
Section 9	*Attachment H*	*Material Safety Data Sheets*	*Not Used*
Section 10	Attachment I	Emission Units Table	
Section 11	Attachment J	Emission Points Data Summary Sheet	
Section 12	Attachment K	Fugitive Emissions Data Summary Sheet	
Section 13	Attachment L	Emissions Unit Data Sheet	
Section 14	*Attachment M*	*Air Pollution Control Device Sheets*	*Not Used*
Section 15	Attachment N	Supporting Emissions Calculations	
Section 16	Attachment O	Monitoring/Recordkeeping/Reporting/ Testing Plans	
Section 17	Attachment P	Public Notice	
Section 18	*Attachment Q*	*Business Confidential Claims*	*Not Used*
Section 19	*Attachment R*	*Authority Forms*	*Not Used*
Section 20	*Attachment S*	*Title V Permit Revision Information*	*Not Used*
Section 21		**Technical Information FT ISI 60 Animal Cremator**	

Section I

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF AIR QUALITY

601 57th Street, SE
Charleston, WV 25304
(304) 926-0475
www.dep.wv.gov/daq

APPLICATION FOR NSR PERMIT AND TITLE V PERMIT REVISION (OPTIONAL)

PLEASE CHECK ALL THAT APPLY TO **NSR (45CSR13)** (IF KNOWN):

☐ **CONSTRUCTION** ☒ **MODIFICATION** ☐ **RELOCATION**
☐ **CLASS I ADMINISTRATIVE UPDATE** ☐ **TEMPORARY**
☐ **CLASS II ADMINISTRATIVE UPDATE** ☐ **AFTER-THE-FACT**

PLEASE CHECK TYPE OF **45CSR30 (TITLE V)** REVISION (IF ANY):

☐ **ADMINISTRATIVE AMENDMENT** ☐ **MINOR MODIFICATION**
☐ **SIGNIFICANT MODIFICATION**

IF ANY BOX ABOVE IS CHECKED, INCLUDE TITLE V REVISION INFORMATION AS **ATTACHMENT S** TO THIS APPLICATION

FOR TITLE V FACILITIES ONLY: Please refer to "Title V Revision Guidance" in order to determine your Title V Revision options (Appendix A, "Title V Permit Revision Flowchart") and ability to operate with the changes requested in this Permit Application.

Section I. General

1. Name of applicant *(as registered with the WV Secretary of State's Office):*
Cooke & Pauley Funeral Home, Inc. dba Cooke Funeral Home

2. Federal Employer ID No. ***(FEIN):***
55-0589572

3. Name of facility *(if different from above):*
Cooke Pet Crematorium LLC

4. The applicant is the:
☒ **OWNER** ☐ **OPERATOR** ☐ **BOTH**

5A. Applicant's mailing address:
P.O. Box 145 - Nitro, WV 25143

5B. Facility's present physical address:
2005 20th Street - Nitro, WV 28143

6. **West Virginia Business Registration.** Is the applicant a resident of the State of West Virginia? ☒ **YES** ☐ **NO**

➪ If **YES,** provide a copy of the **Certificate of Incorporation/Organization/Limited Partnership** (one page) including any name change amendments or other Business Registration Certificate as **Attachment A.**

➪ If **NO,** provide a copy of the **Certificate of Authority/Authority of L.L.C./Registration** (one page) including any name change amendments or other Business Certificate as **Attachment A.**

7. If applicant is a subsidiary corporation, please provide the name of parent corporation:

8. Does the applicant own, lease, have an option to buy or otherwise have control of the *proposed site?* ☒ **YES** ☐ **NO**

➪ If **YES,** please explain: Owns Property

➪ If **NO,** you are not eligible for a permit for this source.

9. Type of plant or facility (stationary source) to be **constructed, modified, relocated, administratively updated** or **temporarily permitted** (e.g., coal preparation plant, primary crusher, etc.):
Animal Crematory

10. North American Industry Classification System **(NAICS)** code for the facility:
812210

11A. DAQ Plant ID No. (for existing facilities only):
039004817

11B. List all current 45CSR13 and 45CSR30 (Title V) permit numbers associated with this process (for existing facilities only):
R13-2372B

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

12A.

- ➪ For **Modifications, Administrative Updates** or **Temporary permits** at an existing facility, please provide directions to the *present location* of the facility from the nearest state road;
- ➪ For **Construction** or **Relocation permits,** please provide directions to the *proposed new site location* from the nearest state road. Include a **MAP** as **Attachment B**.

Two miles south from I-64 interchange, East on 2oth Street from Rte. 25 in the business section of Nitro
2005 20th Street, Nitro, WV 25143

12.B. New site address (if applicable):	12C. Nearest city or town: Nitro	12D. County: Kanawha
12.E. UTM Northing (KM): 4252.729	12F. UTM Easting (KM): 426.466	12G. UTM Zone: 17

13. Briefly describe the proposed change(s) at the facility: Installation of one (1) additional Animal Cremator

14A. Provide the date of anticipated installation or change: 09 / 08 / 2015 ➪ If this is an **After-The-Fact** permit application, provide the date upon which the proposed change did happen: / /	14B. Date of anticipated Start-Up if a permit is granted: 09 / 14 / 2015

14C. Provide a **Schedule** of the planned **Installation** of/**Change** to and **Start-Up** of each of the units proposed in this permit application as **Attachment C** (if more than one unit is involved).

15. Provide maximum projected **Operating Schedule** of activity/activities outlined in this application:
Hours Per Day 24 Days Per Week 7 Weeks Per Year 52

16. Is demolition or physical renovation at an existing facility involved? ☐ **YES** ☒ **NO**

17**. Risk Management Plans.** If this facility is subject to 112(r) of the 1990 CAAA, or will become subject due to proposed changes (for applicability help see www.epa.gov/ceppo), submit your **Risk Management Plan (RMP)** to U. S. EPA Region III.

18**. Regulatory Discussion.** List all Federal and State air pollution control regulations that you believe are applicable to the proposed process *(if known).* A list of possible applicable requirements is also included in Attachment S of this application (Title V Permit Revision Information). Discuss applicability and proposed demonstration(s) of compliance *(if known).* Provide this information as **Attachment D.**

Section II. Additional attachments and supporting documents.

19. Include a check payable to WVDEP – Division of Air Quality with the appropriate **application fee** (per 45CSR22 and 45CSR13).

20. Include a **Table of Contents** as the first page of your application package.

21. Provide a **Plot Plan,** e.g. scaled map(s) and/or sketch(es) showing the location of the property on which the stationary source(s) is or is to be located as **Attachment E** (Refer to ***Plot Plan Guidance***) **.**

➪ Indicate the location of the nearest occupied structure (e.g. church, school, business, residence).

22. Provide a **Detailed Process Flow Diagram(s)** showing each proposed or modified emissions unit, emission point and control device as **Attachment F.**

23. Provide a **Process Description** as **Attachment G.**

➪ Also describe and quantify to the extent possible all changes made to the facility since the last permit review (if applicable).

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

24. Provide **Material Safety Data Sheets (MSDS)** for all materials processed, used or produced as **Attachment H.**

➪ For chemical processes, provide a MSDS for each compound emitted to the air.

25. Fill out the **Emission Units Table** and provide it as **Attachment I.**

26. Fill out the **Emission Points Data Summary Sheet (Table 1 and Table 2)** and provide it as **Attachment J.**

27. Fill out the **Fugitive Emissions Data Summary Sheet** and provide it as **Attachment K.**

28. Check all applicable **Emissions Unit Data Sheets** listed below:

☐ Bulk Liquid Transfer Operations	☐ Haul Road Emissions	☐ Quarry
☐ Chemical Processes	☐ Hot Mix Asphalt Plant	☐ Solid Materials Sizing, Handling and Storage Facilities
☐ Concrete Batch Plant	☒ Incinerator	☐ Storage Tanks
☐ Grey Iron and Steel Foundry	☐ Indirect Heat Exchanger	
☐ General Emission Unit, specify		

Fill out and provide the **Emissions Unit Data Sheet(s)** as **Attachment L.**

29. Check all applicable **Air Pollution Control Device Sheets** listed below:

☐ Absorption Systems	☐ Baghouse	☐ Flare
☐ Adsorption Systems	☐ Condenser	☐ Mechanical Collector
☒ Afterburner	☐ Electrostatic Precipitator	☐ Wet Collecting System

☐ Other Collectors, specify

Fill out and provide the **Air Pollution Control Device Sheet(s)** as **Attachment M.**

30. Provide all **Supporting Emissions Calculations** as **Attachment N,** or attach the calculations directly to the forms listed in Items 28 through 31.

31. **Monitoring, Recordkeeping, Reporting and Testing Plans.** Attach proposed monitoring, recordkeeping, reporting and testing plans in order to demonstrate compliance with the proposed emissions limits and operating parameters in this permit application. Provide this information as **Attachment O.**

➢ Please be aware that all permits must be practically enforceable whether or not the applicant chooses to propose such measures. Additionally, the DAQ may not be able to accept all measures proposed by the applicant. If none of these plans are proposed by the applicant, DAQ will develop such plans and include them in the permit.

32. **Public Notice.** At the time that the application is submitted, place a **Class I Legal Advertisement** in a newspaper of general circulation in the area where the source is or will be located (See 45CSR§13-8.3 through 45CSR§13-8.5 and ***Example Legal Advertisement*** for details). Please submit the **Affidavit of Publication** as **Attachment P** immediately upon receipt.

33**. Business Confidentiality Claims.** Does this application include confidential information (per 45CSR31)?

☐ **YES** ☒ **NO**

➢ If **YES,** identify each segment of information on each page that is submitted as confidential and provide justification for each segment claimed confidential, including the criteria under 45CSR§31-4.1, and in accordance with the DAQ's "***Precautionary Notice – Claims of Confidentiality"*** guidance found in the ***General Instructions*** as **Attachment Q.**

Section III. Certification of Information

34. **Authority/Delegation of Authority.** Only required when someone other than the responsible official signs the application. Check applicable **Authority Form** below:

☐ Authority of Corporation or Other Business Entity	☐ Authority of Partnership
☐ Authority of Governmental Agency	☐ Authority of Limited Partnership

Submit completed and signed **Authority Form** as **Attachment R.**

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

35A. **Certification of Information.** To certify this permit application, a Responsible Official (per 45CSR§13-2.22 and 45CSR§30-2.28) or Authorized Representative shall check the appropriate box and sign below.

Certification of Truth, Accuracy, and Completeness

I, the undersigned ☒ **Responsible Official** / ☐ **Authorized Representative,** hereby certify that all information contained in this application and any supporting documents appended hereto, is true, accurate, and complete based on information and belief after reasonable inquiry I further agree to assume responsibility for the construction, modification and/or relocation and operation of the stationary source described herein in accordance with this application and any amendments thereto, as well as the Department of Environmental Protection, Division of Air Quality permit issued in accordance with this application, along with all applicable rules and regulations of the West Virginia Division of Air Quality and W.Va. Code § 22-5-1 et seq. (State Air Pollution Control Act). If the business or agency changes its Responsible Official or Authorized Representative, the Director of the Division of Air Quality will be notified in writing within 30 days of the official change.

Compliance Certification

Except for requirements identified in the Title V Application for which compliance is not achieved, I, the undersigned hereby certify that, based on information and belief formed after reasonable inquiry, all air contaminant sources identified in this application are in compliance with all applicable requirements.

SIGNATURE _____ DATE: _____

(Please use blue ink) *(Please use blue ink)*

35B. Printed name of signee: Roger Cooke		35C. Title: Owner
35D. E-mail: cookefh@aol.com	36E. Phone: 304.755.3334	36F. FAX: 304.755.2539
36A. Printed name of contact person (if different from above):		36B. Title:
36C. E-mail:	36D. Phone:	36E. FAX:

PLEASE CHECK ALL APPLICABLE ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:

- ☒ **Attachment A: Business Certificate**
- ☒ **Attachment B: Map(s)**
- ☒ **Attachment C: Installation and Start Up Schedule**
- ☐ **Attachment D: Regulatory Discussion**
- ☒ **Attachment E: Plot Plan**
- ☒ **Attachment F: Detailed Process Flow Diagram(s)**
- ☒ **Attachment G: Process Description**
- ☐ **Attachment H: Material Safety Data Sheets (MSDS)**
- ☒ **Attachment I: Emission Units Table**
- ☒ **Attachment J: Emission Points Data Summary Sheet**
- ☒ **Attachment K: Fugitive Emissions Data Summary Sheet**
- ☒ **Attachment L: Emissions Unit Data Sheet(s)**
- ☐ **Attachment M: Air Pollution Control Device Sheet(s)**
- ☒ **Attachment N: Supporting Emissions Calculations**
- ☒ **Attachment O: Monitoring/Recordkeeping/Reporting/Testing Plans**
- ☒ **Attachment P: Public Notice**
- ☐ **Attachment Q: Business Confidential Claims**
- ☐ **Attachment R: Authority Forms**
- ☐ **Attachment S: Title V Permit Revision Information**
- ☒ **Application Fee**

Please mail an original and three (3) copies of the complete permit application with the signature(s) to the DAQ, Permitting Section, at the address listed on the first page of this application. Please DO NOT fax permit applications.

FOR AGENCY USE ONLY – IF THIS IS A TITLE V SOURCE:

- ☐ ***Forward 1 copy of the application to the Title V Permitting Group and:***
- ☐ ***For Title V Administrative Amendments:***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit,***
- ☐ ***For Title V Minor Modifications:***
  - ☐ ***Title V permit writer should send appropriate notification to EPA and affected states within 5 days of receipt,***
  - ☐ ***NSR permit writer should notify Title V permit writer of draft permit.***
- ☐ ***For Title V Significant Modifications processed in parallel with NSR Permit revision:***
  - ☐ ***NSR permit writer should notify a Title V permit writer of draft permit,***
  - ☐ ***Public notice should reference both 45CSR13 and Title V permits,***
  - ☐ ***EPA has 45 day review period of a draft permit.***

All of the required forms and additional information can be found under the Permitting Section of DAQ's website, or requested by phone.

Section 2

State of West Virginia

Certificate

I, Betty Ireland, Secretary of State of the State of West Virginia, hereby certify that

COOKE PET CREMATORIUM, LLC

Control Number: 99589

has filed its "Articles of Organization" in my office according to the provisions of West Virginia Code §§31B-2-203 and 206. I hereby declare the organization to be registered as a limited liability company from its effective date of January 29, 2008 until the expiration of the term or termination of the company.

Therefore, I hereby issue this

CERTIFICATE OF A LIMITED LIABILITY COMPANY

Given under my hand and the Great Seal of the State of West Virginia on this day of January 29, 2008

Betty Ireland

Secretary of State

Betty Ireland
Secretary of State
State Capitol Building
1900 Kanawha Blvd. East
Charleston, WV 25305-0770

FILED

JAN 29 2008

IN THE OFFICE OF
SECRETARY OF STATE

WEST VIRGINIA ARTICLES OF ORGANIZATION OF LIMITED LIABILITY COMPANY

Penney Barker, Manager
Corporations Division
Tel: (304) 558-8000
Fax: (304) 558-8381
Hours: 8:30 a.m. - 5:00 p.m. ET

Control # 99587

We, acting as organizers according to West Virginia Code §31B-2-202, adopt the following Articles of Organization for a West Virginia Limited Liability Company:

1. The **name** of the **West Virginia limited liability company** shall be: [The name must contain one of the required terms such as "limited liability company" or abbreviations such as "LLC" or "PLLC"--see instructions for list of acceptable terms.] Cooke Pet Crematorium, LLC

2. The company will be an: [x] LLC [ ] professional LLC for the profession of _____

3. The **address** of the initial **designated office** of the company in WV, if any, will be: [need not be a place of the company's business]
   Street: 2002 Twentieth Street
   City/State/Zip: Nitro 25143 WV

4. The mailing address of the **principal office,** if different, will be:
   Street/Box: Post Office Box 145
   City/State/Zip: Nitro, WV 25143

5. The name and address of the **agent for service of process**, if any, is:
   Name: Roger A. Cooke
   Street: Post Office Box 145
   City/State/Zip: Nitro, WV 25143

   The mailing address of the above agent of process, if different, is:
   Street/Box: _____
   City/State/Zip: _____

6. The name and address of each organizer:

Name	No. & Street	City, State, Zip
Roger A. Cooke	Post Office Box 145	Nitro, WV 25143
Patricia J. Cooke	Post Office Box 145	Nitro, WV 25143

7. The company will be:
   [x] an at-will company, for an indefinite period.
   [ ] a term company, for the term of _____ years.

M02 k $250.00 01/28/2008 716411

8. The Company will be:

[x] **member-managed**. [List the name and address of each member with signature authority, attach an extra sheet if needed]

OR [ ] **manager-managed**, [List the name and address of each manager with signature authority, attach an extra sheet if needed.]

Name	Address	City, State, Zip
Roger A. Cooke	Post Office Box 145	Nitro, WV 25143
Patricia J. Cooke	Post Office Box 145	Nitro, WV 25143

9. All or specified members of a limited liability company are liable in their capacity as members for all or specified debts, obligations or liabilities of the company.

[x] NO— All debts, obligations and liabilities are those of the company.

[ ] YES -- Those persons who are liable in their capacity as members for all debts, obligations or liability of the company have consented to this in writing.

10. The **purposes** for which this limited liability company is formed are as follows:
(Describe the type(s) of business activity which will be conducted, for example, "real estate," "construction of residential and commercial buildings," "commercial printing," "professional practice of architecture.")

Cremation of deceased pets

11. Other provisions which may be set forth in the operating agreement or matters not inconsistent with law:
[See instructions for further information; use extra pages if necessary.]

12. The number of pages attached and included in these Articles is None.

13. The requested effective date is: [x] the date & time of filing
[Requested date may not be earlier than filing nor later than 90 days after filing.]

[ ] the following date _____ and time _____

14. Contact and Signature Information:

a. Contact person to reach in case there is a problem with filing: Albert F. Good, Attorney

Phone # 304-343-5531

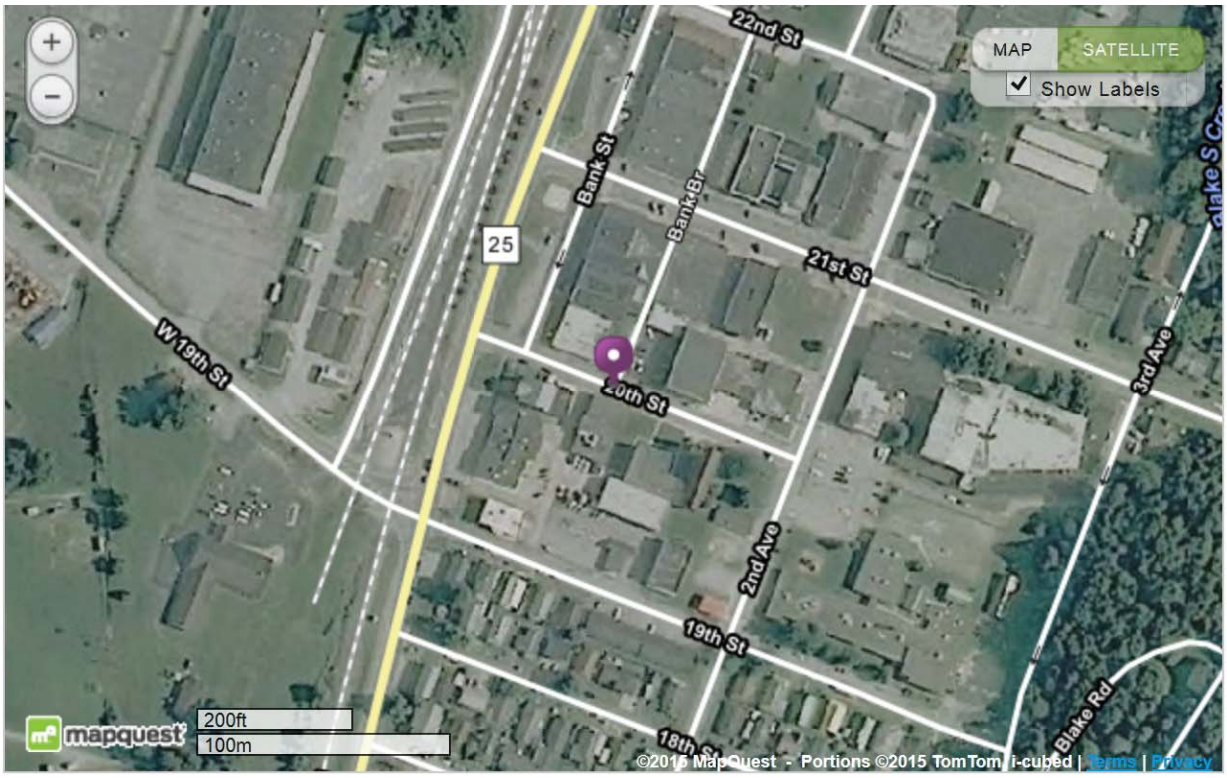
b. Signature of : (manager of a manager-managed company, member of a member-managed company, person organizing the company, if the company has not been formed or attorney-in-fact for any of the above.

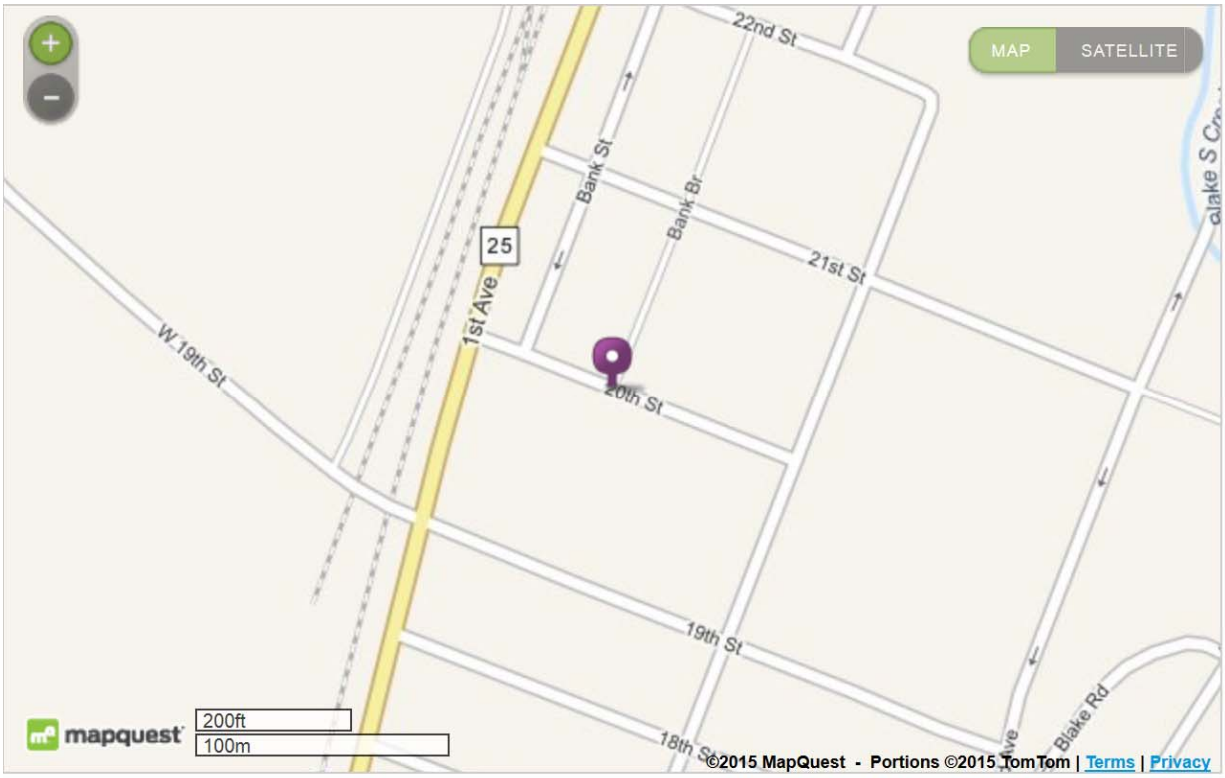
Roger A. Cooke	Member	Roger A Cooke
Name [print or type]	Title/Capacity	Signature

Section 3

Map View of Cooke Pet Crematorium

Additional maps in Section 6 – Plot Plans





Section 4

Attachment C

Schedule of Planned Installation of New Human Cremator

Upon receipt of the Permit to Modify we are planning on the following schedule for the installation and Start-up of one (1) Facultatieve Technologies ISI 60 Animal Cremation System. These dates could possibly change due to manufacturing of the cremator from our vendor, Facultatieve Technologies. In the event that the dates change we will provide a revised schedule to West Virginia Department of Environmental Protection – Division of Air Quality a minimum of 30 days from the anticipated installation and start-up.

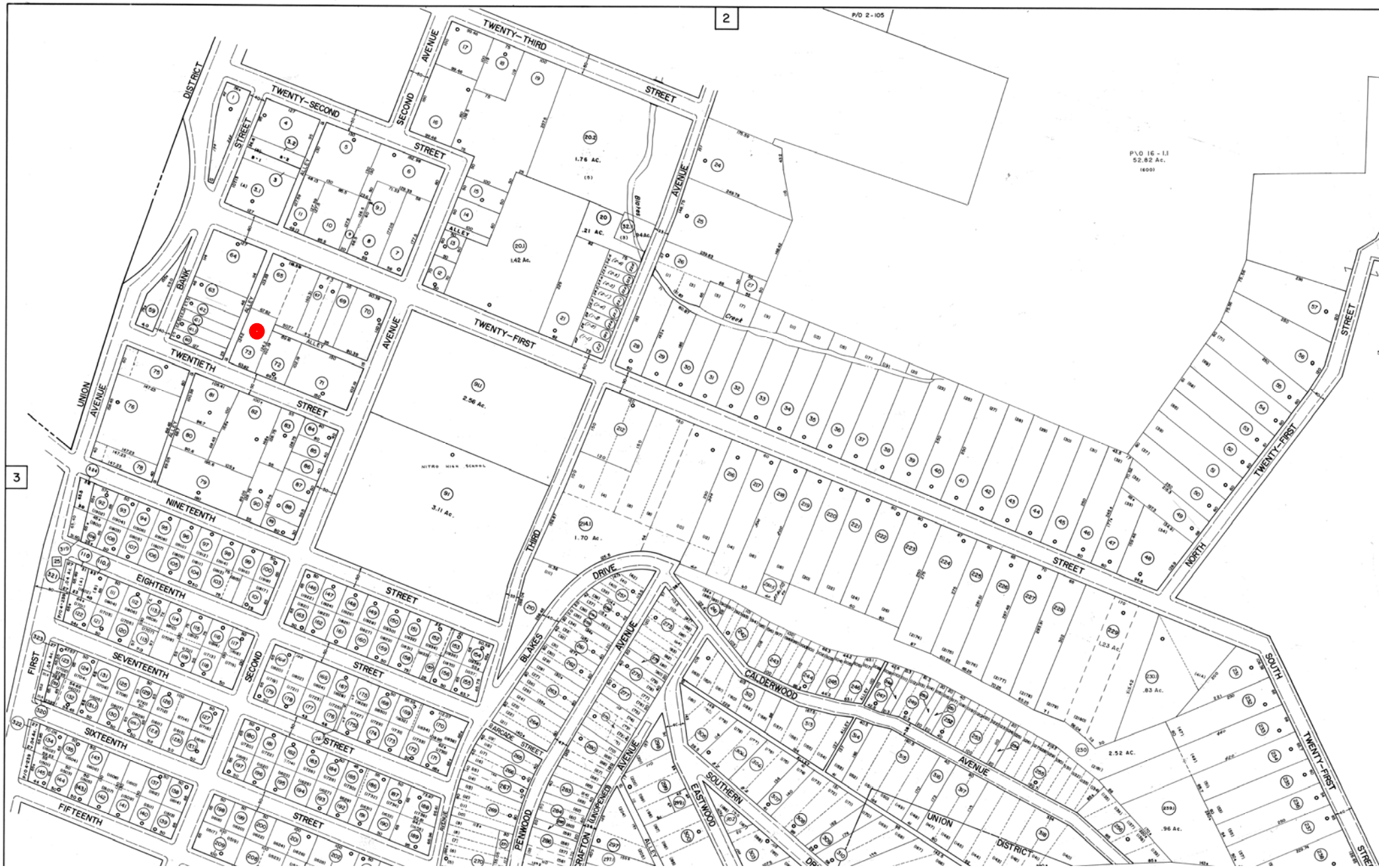
Tuesday, September 8, 2015	Equipment delivered to jobsite – Nitro, West Virgina
Wednesday, September 9, 2015	Equipment installation to begin
Friday, September 11, 2015	Installation complete
Monday, September 14, 2015	Operator training
Tuesday, September 15, 2013	Cremator Start-up / Operational

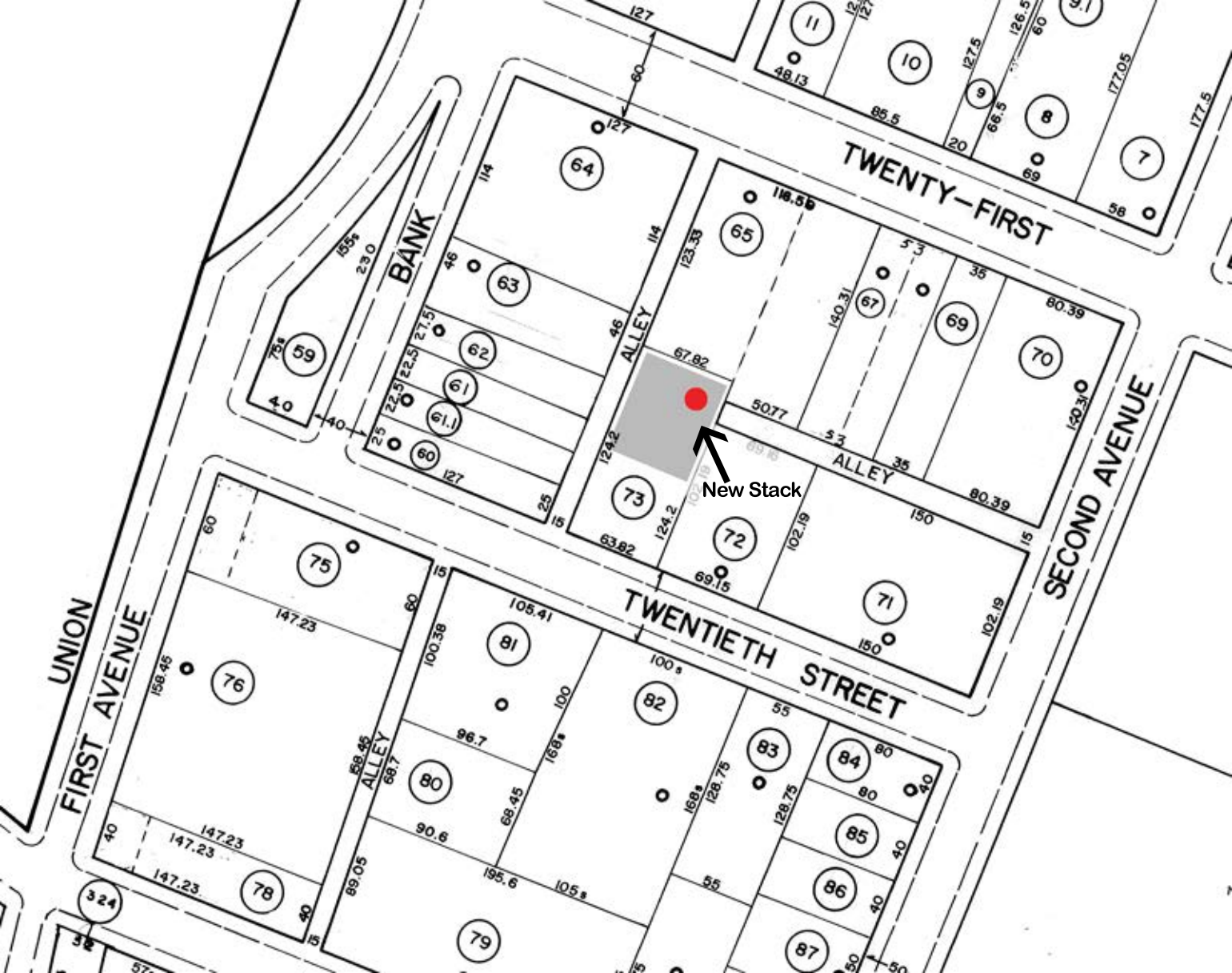
Section 5

This Section Not Used

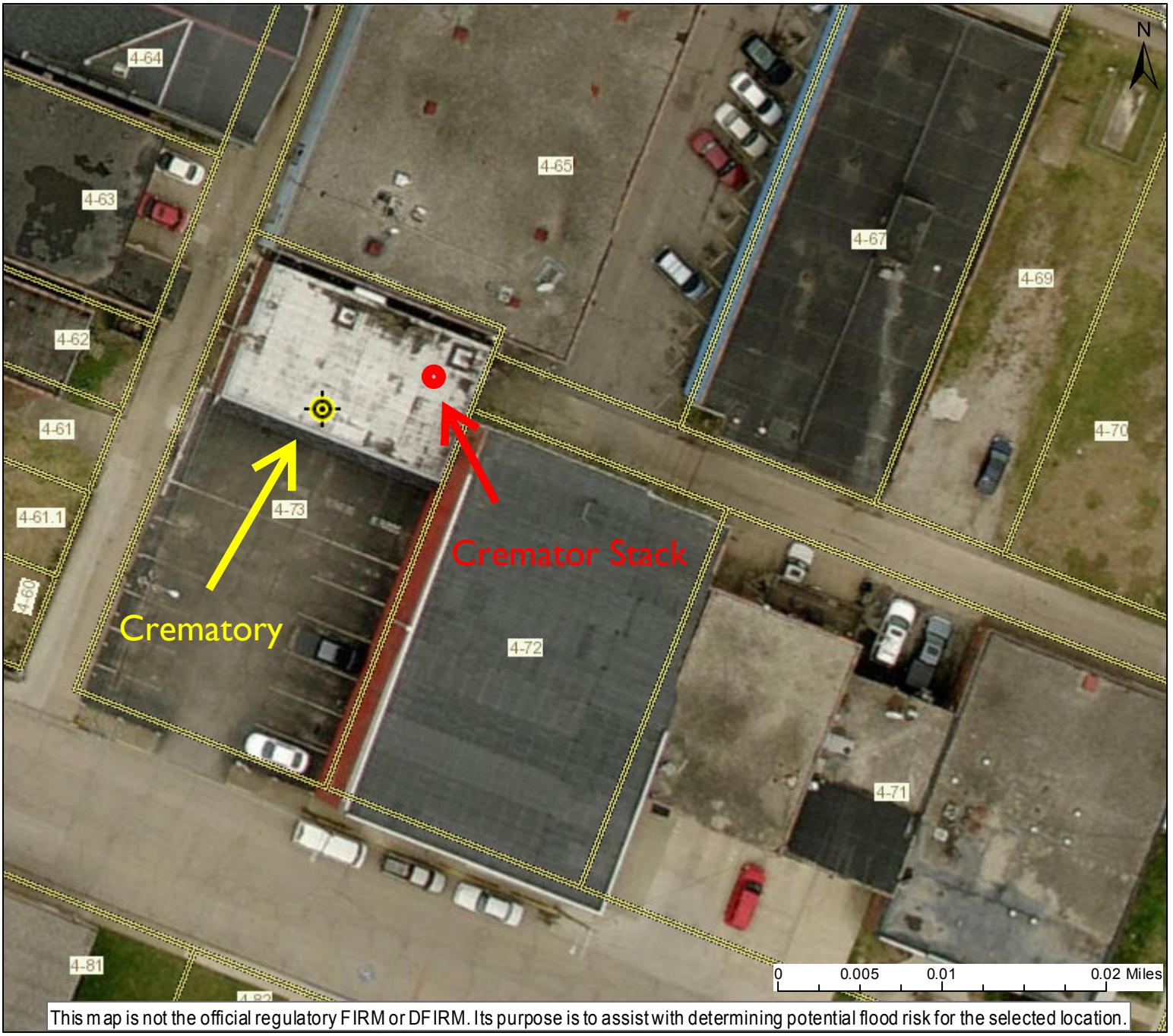
Section 6

Cooke Crematory - Front view


2
3
TWENTY-THIRD STREET
TWENTY-SECOND STREET
TWENTY-FIRST STREET
TWENTIETH STREET
NINETEENTH STREET
EIGHTEENTH STREET
SEVENTEENTH STREET
SIXTEENTH STREET
FIFTEENTH STREET
SECOND AVENUE
UNION AVENUE
THIRD AVENUE
BLAKES AVENUE
PENWOOD AVENUE
EASTWOOD AVENUE
CALDERWOOD AVENUE
SOUTHERN DRIVE
DISTRICT
BANK
ALLEY
ARCADE STREET
NORTH
SOUTH
FIRST
NITRO HIGH SCHOOL
1.76 AC.
1.42 Ac.
.21 AC.
.44 Ac.
2.56 Ac.
3.11 Ac.
1.70 Ac.
1.23 Ac.
.83 Ac.
2.52 AC.
.96 Ac.
P/O 2-105
P/O 16-1.1
52.82 Ac.
(600)
Creek


TWENTY-FIRST
TWENTIETH STREET
ALLEY
BANK
FIRST AVENUE
SECOND AVENUE
UNION
New Stack

WV Flood Map



This map is not the official regulatory FIRM or DFIRM. Its purpose is to assist with determining potential flood risk for the selected location.

User Notes:

Flood Hazard Zone

Flood Point of Interest

Disclaimer:

The online map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. To obtain more detailed information in areas where Base Flood Elevations have been determined, users are encouraged to consult the latest Flood Profile data contained in the official flood insurance study. These studies are available online at www.msc.fema.gov.

WV Flood Tool (http://www.MapWV.gov/flood) is supported by FEMA, WV NFIP Office, and WV GIS Technical Center.

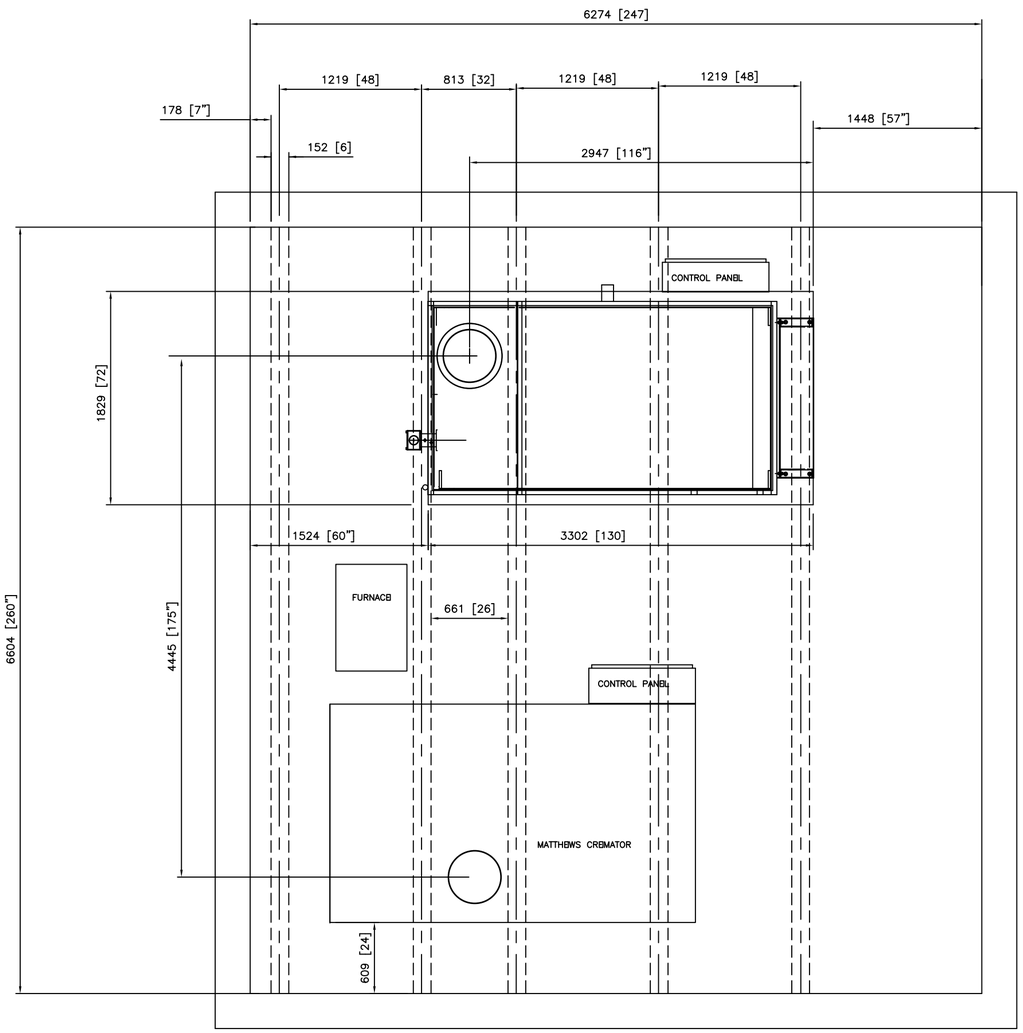
Map created on June 30, 2015

Flood Hazard Area:
Flood Hazard Area: Location is NOT WITHIN any identified flood hazard area. Unmapped flood hazard

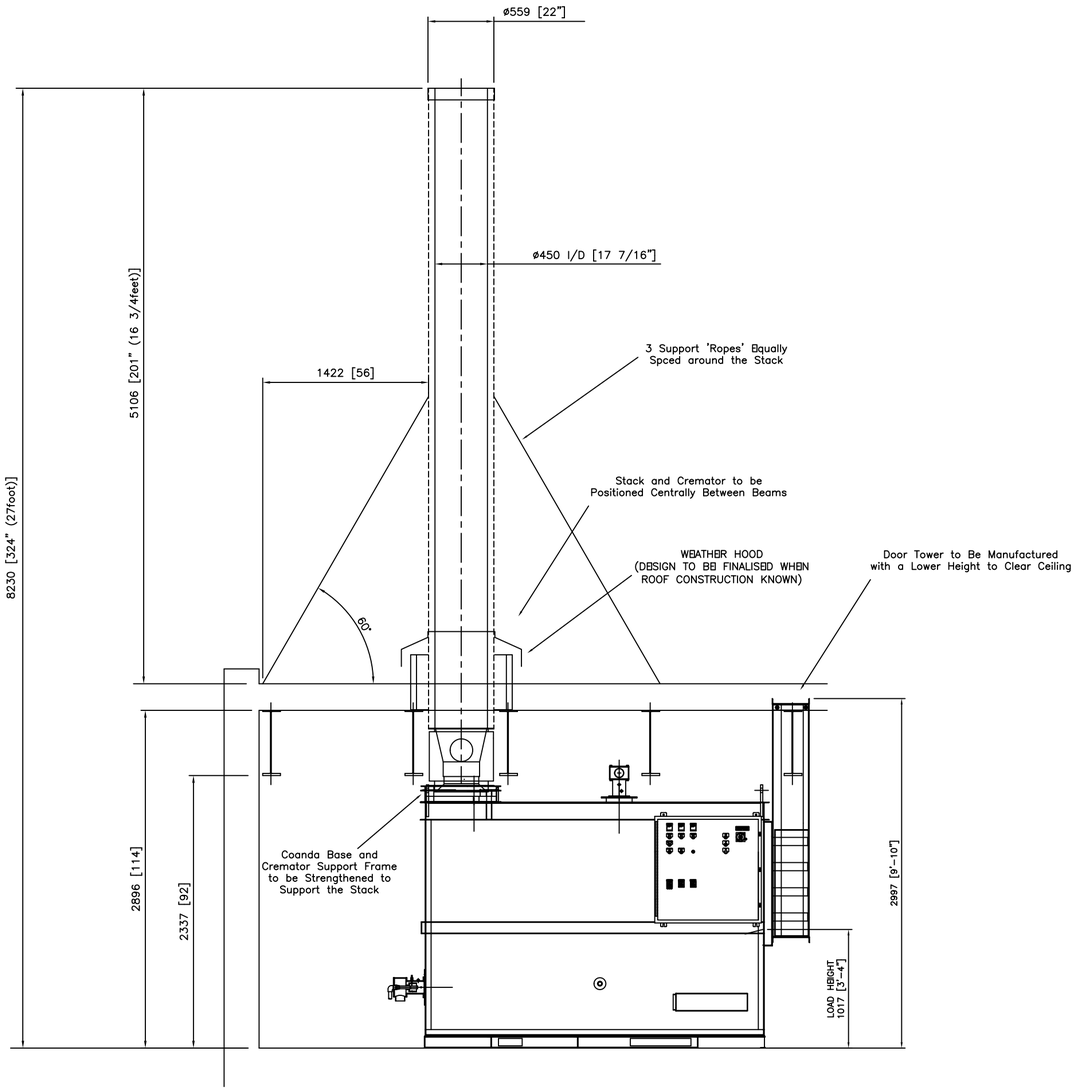
FEMA Issued Flood Map:	54039C0212E
Watershed (HUC8):	Lower Kanawha (5050008)
Elevation:	About 608 ft
Location (long, lat):	(81.841579 W,38.421750 N)
Location (UTM 17N):	(426537, 4252945)
Contacts:	Kanawha
CRS Information:	N/A
Parcel Number:	4-73

A | B | IF IN DOUBT ASK | C | DO NOT SCALE | D | REMOVE ALL SHARP EDGES | E | F

1 2 3 4 5



PLAN VIEW



SIDE ELEVATION (Shown Out of Position).

Issue No	Issue No	Issue No
Mod By:	Mod By:	Mod By:
Date:	Date:	Date:
Chk'd:	Chk'd:	Chk'd:

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Moor Road
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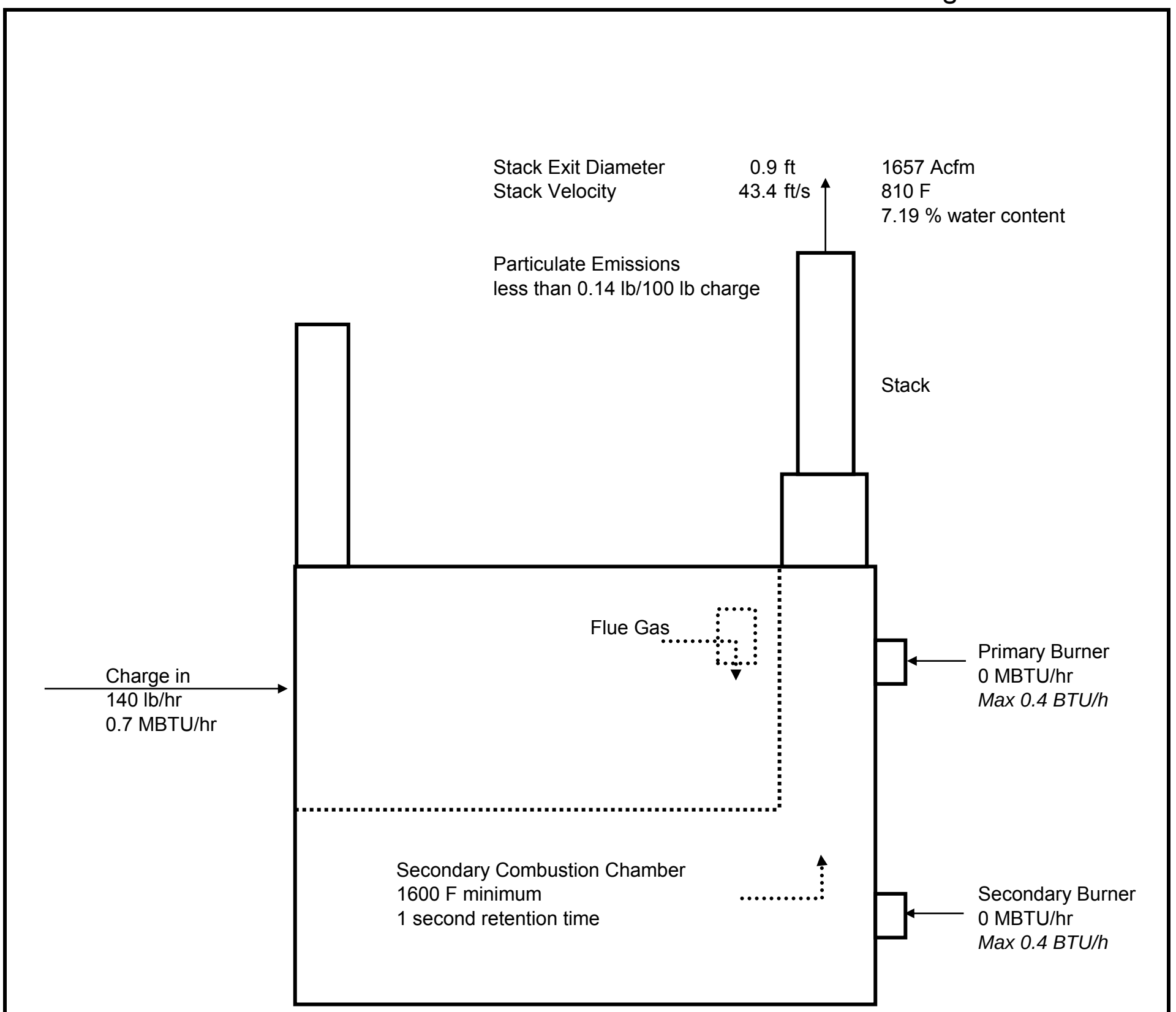
Drawn : MS	Date : 02/7/15	Title : ARRANGEMENT OF ISI-60 ANIMAL CREMATOR	
Chk'd :	Date :		
Appv'd:	Date :		
Scale : 1:25	Dir :		Issue
Project: COOKE PET CREMATOR		Drg No: 77543 TS 0001	P2

Section 7

Attachment 4
Process Flow Diagram



Normal Operating Condition

Energy from charge	0.7 MBTU/hr
Energy from Primary Burner	0 MBTU/hr
Energy from Secondary Burner	0 MBTU/hr
Total Energy	0.7 MBTU/hr

Facultatieve Technologies
Cremation & Incineration Equipment

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Drawn Ernie Kassoff	Title ISI 60 Process Flow Diagram Normal Operating Condition
Date April 2015	
Project Cooke Pet Cremation	Drg No PFD 00

Section 8

Attachment G

Process Description of Facultatieve Technologies FT ISI 60 Animal Cremator

The Facultatieve Technologies FT ISI Animal Cremator is designed to burn animal remains. Its automatic controls will function to cremate efficiently with the minimum of operator intervention. It is designed to operate in compliance within the emission legislation outlined by the West Virginia Department of Environmental Protection – Division of Air Quality.

Below you will find a basic description of the operation of a Facultatieve Technologies animal cremator. Additional documentation including our Technical Brochure and Technical Specifications can be found following the descriptive.

The Facultatieve Technologies FT ISI 60 Animal Cremator is a multiple chamber design (primary and secondary) and in the case of Cooke Funeral Home & Crematory will be fired with natural gas as auxiliary fuel. The cremator has a nominal burn rate of 140 lbs. per hour with a maximum batch size of 700 lbs. of animal cadavers. The cremator is designed for manual single batch loading.

The standard process of cremation for an animal cadaver in a Facultatieve Technologies cremator is to preheat the machine with the secondary chamber (afterburner) reaching a controlled temperature of not less than 1600°F and the primary chamber is set at ambient temperature. Once these parameters have been the operator is instructed that the cremator is ready to process a cremation. The operator then opens the primary chamber door loads the animal cadaver into the cremation chamber. The door then closes and the cremation process begins with automatic control process of all functions via preset timers located on the control panel. The operator can observe the cremation process via the sight glass in the primary chamber door. Upon completion of the cremation process the operator opens the primary chamber door and moves the cremated remains into a cooling area for final disposition. The design of the Facultatieve Technologies FT ISI 60 Animal Cremator is to cool down the primary chamber for approximately 60 minutes to a maximum temperature of 600°F prior to charging the next animal cadaver. In addition, the process design of the Facultative Technologies cremator is to use the animal cadaver as the primary fuel source and only use natural gas to supplement the cremation process. Once the machines refractory is super-heated the use of gas to perform the cremation process is virtually non-existent. The only gas used is in the secondary chamber (afterburner) to maintain the regulated temperature of 1600°F required by the West Virginia Department of Environmental Protection – Division of Air Quality. The sum effect of this design is drastically reducing emissions.

As stated above, the Facultatieve Technologies is a multi-chamber cremator with a primary chamber where the cremation takes place and then a secondary chamber where destruction of emissions occur.

- The Primary Chamber is approximately 70 cu. ft. with a burner located in the top of the hearth area. This burner is designed to modulate between low and high fire with a maximum capacity of 750,000 MMBTU/hr. The temperatures in the primary chamber are controlled by the use of a temperature probe.
- The Secondary Chamber is approximately 150 cu. ft. in volume with a burner located in the rear wall. The unique design of our secondary chamber uses a serpentine baffle system to ensure that emissions from the primary chamber have ample time for destruction with a minimum of 1 second retention time prior to reaching the flue stack. As in the primary chamber the burner modulates between low and high fire with a capacity of 1.2 MMBTU/hr. The temperatures in the primary chamber are controlled by the use of a temperature probe.

The exhaust stack is estimated to have a total overall height of 30 ft. above grade level.

Health and Safety:

Statement of Intent

Facultatieve Technologies the Americas is one of North Americas leading suppliers of human and animal cremation systems supporting major blue chip companies throughout the industry. Facultative Technologies the Americas recognizes the impact that its business activities have on employees, the public and the environment.

As part of our corporate strategy, we intend to:

- Continuously improve a culture that recognizes the importance of Health, Safety and the impact of its products upon the Environment to the success of its business, and exercises its responsibilities in a manner that reflects this objective.
- Ensure that only the highest practical standards are achieved and adhered to in all our undertakings.
- Operate facilities in a manner that minimizes rick to employees, visitors, the Environment and community.
- Continually improve our performance in Health & Safety and the Environment through active participation, commitment and support of all our employees.

Section 9

This Section Not Used

Section 10

Attachment I

Emission Units Table

(includes all emission units and air pollution control devices that will be part of this permit application review, regardless of permitting status)

Emission Unit ID[1]	Emission Point ID[2]	Emission Unit Description	Year Installed/ Modified	Design Capacity	Type[3] and Date of Change	Control Device[4]
1S	1E	All 2500 Elite Cremator	2000	100 lbs./hr Human Remains		Secondary Combustion Chamber
2S	2E	Power-Pak Jr.	2007	75 lbs./hr Animal Remains		Secondary Combustion Chamber
3S	3E	Facultatieve Technologies FT III	2014	150-200 lbs./hr Human Remains		Secondary Combustion Chamber
4S	4E	Facultatieve Technologies ISI 60		140 lbs./hr Animal Cremator	NEW Animal Cremator September 2015	Secondary Combustion Chamber

[1] For Emission Units (or Sources) use the following numbering system:1S, 2S, 3S,... or other appropriate designation.
[2] For Emission Points use the following numbering system:1E, 2E, 3E, ... or other appropriate designation.
[3] New, modification, removal
[4] For Control Devices use the following numbering system: 1C, 2C, 3C,... or other appropriate designation.

Section II

Attachment J

EMISSION POINTS DATA SUMMARY SHEET

Table 1: Emissions Data

Emission Point ID No. *(Must match Emission Units Table & Plot Plan)*	Emission Point Type[1]	Emission Unit Vented Through This Point *(Must match Emission Units Table & Plot Plan)*		Air Pollution Control Device *(Must match Emission Units Table & Plot Plan)*		Vent Time for Emission Unit *(chemical processes only)*		All Regulated Pollutants - Chemical Name/CAS[3] *(Speciate VOCs & HAPS)*	Maximum Potential Uncontrolled Emissions[4]		Maximum Potential Controlled Emissions[5]		Emission Form or Phase *(At exit conditions, Solid, Liquid or Gas/Vapor)*	Est. Method Used[6]	Emission Concentration[7] (ppmv or mg/m^4)
		ID No.	Source	ID No.	Device Type	Short Term[2]	Max (hr/yr)		lb/hr	ton/yr	lb/hr	ton/yr			
4E	Upward vertical stack	4S	Crematory	4S	Secondary Combustion Chamber			HCl SO2	0.163 0.163	0.15 0.15	0.163 0.163	0.15 0.15	Gas Vapor Gas Vapor	ST max of many tests ST max of many tests	186 mg/m³ 36 ppmv
								NO **NO2**	**0.163** **0.254**	**0.15** **0.24**	**0.163** **0.254**	**0.15** **0.24**	**Gas** Vapor **Gas** Vapor	ST max of many tests EE	123 ppmv 2 ppmv
								CO **VOC**	**0.081** **0.016**	**0.08** **0.02**	**0.081** **0.016**	**0.08** **0.02**	**Gas** Vapor **Gas** Vapor	ST max of many tests ST max of many tests	41 ppmv 14 ppmv

The EMISSION POINTS DATA SUMMARY SHEET provides a summation of emissions by emission unit. Note that uncaptured process emission unit emissions are not typically considered to be fugitive and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET. Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions). Please complete the FUGITIVE EMISSIONS DATA SUMMARY SHEET for fugitive emission activities.

[1] Please add descriptors such as upward vertical stack, downward vertical stack, horizontal stack, relief vent, rain cap, etc.

[2] Indicate by "C" if venting is continuous. Otherwise, specify the average short-term venting rate with units, for intermittent venting (ie., 15 min/hr). Indicate as many rates as needed to clarify frequency of venting (e.g., 5 min/day, 2 days/wk).

[3] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. **LIST** Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, etc. **DO NOT LIST** CO_2, H_2, H_2O, N_2, O_2, and Noble Gases.

[4] Give maximum potential emission rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[5] Give maximum potential emission rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[6] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

[7] Provide for all pollutant emissions. Typically, the units of parts per million by volume (ppmv) are used. If the emission is a mineral acid (sulfuric, nitric, hydrochloric or phosphoric) use units of milligram per dry cubic meter (mg/m^3) at standard conditions (68 °F and 29.92 inches Hg) (see 45CSR7). If the pollutant is SO_2, use units of ppmv (See 45CSR10).

Attachment J

EMISSION POINTS DATA SUMMARY SHEET

Table 2: Release Parameter Data								
Emission Point ID No. *(Must match Emission Units Table)*	Inner Diameter (ft.)	Exit Gas			Emission Point Elevation (ft)		UTM Coordinates (km)	
		Temp. (^{o}F)	Volumetric Flow [1] (acfm) *at operating conditions*	Velocity (fps)	Ground Level *(Height above mean sea level)*	Stack Height [2] *(Release height of emissions above ground level)*	Northing	Easting
4E	**1.5**	**810**	**1657**	**43.4**	**1011 ft.**	**Estimated 30 ft**	**4252.729**	**426.466**

[1] Give at operating conditions. Include inerts.
[2] Release height of emissions above ground level.

Section 12

Attachment K

FUGITIVE EMISSIONS DATA SUMMARY SHEET

The FUGITIVE EMISSIONS SUMMARY SHEET provides a summation of fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. Note that uncaptured process emissions are not typically considered to be fugitive, and must be accounted for on the appropriate EMISSIONS UNIT DATA SHEET and on the EMISSION POINTS DATA SUMMARY SHEET.

Please note that total emissions from the source are equal to all vented emissions, all fugitive emissions, plus all other emissions (e.g. uncaptured emissions).

APPLICATION FORMS CHECKLIST - FUGITIVE EMISSIONS
1.) Will there be haul road activities? ☐ Yes ☒ No ☐ If YES, then complete the HAUL ROAD EMISSIONS UNIT DATA SHEET.
2.) Will there be Storage Piles? ☐ Yes ☒ No ☐ If YES, complete Table 1 of the NONMETALLIC MINERALS PROCESSING EMISSIONS UNIT DATA SHEET.
3.) Will there be Liquid Loading/Unloading Operations? ☐ Yes ☒ No ☐ If YES, complete the BULK LIQUID TRANSFER OPERATIONS EMISSIONS UNIT DATA SHEET.
4.) Will there be emissions of air pollutants from Wastewater Treatment Evaporation? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
5.) Will there be Equipment Leaks (e.g. leaks from pumps, compressors, in-line process valves, pressure relief devices, open-ended valves, sampling connections, flanges, agitators, cooling towers, etc.)? ☐ Yes ☒ No ☐ If YES, complete the LEAK SOURCE DATA SHEET section of the CHEMICAL PROCESSES EMISSIONS UNIT DATA SHEET.
6.) Will there be General Clean-up VOC Operations? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET.
7.) Will there be any other activities that generate fugitive emissions? ☐ Yes ☒ No ☐ If YES, complete the GENERAL EMISSIONS UNIT DATA SHEET or the most appropriate form.
If you answered "NO" to all of the items above, it is not necessary to complete the following table, "Fugitive Emissions Summary."

FUGITIVE EMISSIONS SUMMARY	All Regulated Pollutants - Chemical Name/CAS [1]	Maximum Potential Uncontrolled Emissions [2]		Maximum Potential Controlled Emissions [3]		Est. Method Used [4]
		lb/hr	ton/yr	lb/hr	ton/yr	
Haul Road/Road Dust Emissions Paved Haul Roads						
Unpaved Haul Roads						
Storage Pile Emissions						
Loading/Unloading Operations						
Wastewater Treatment Evaporation & Operations						
Equipment Leaks		Does not apply		Does not apply		
General Clean-up VOC Emissions						
Other						

[1] List all regulated air pollutants. Speciate VOCs, including all HAPs. Follow chemical name with Chemical Abstracts Service (CAS) number. LIST Acids, CO, CS_2, VOCs, H_2S, Inorganics, Lead, Organics, O_3, NO, NO_2, SO_2, SO_3, etc. DO NOT LIST CO_2, H_2, H_2O, N_2, O_2, and Noble Gases.

[2] Give rate with no control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[3] Give rate with proposed control equipment operating. If emissions occur for less than 1 hr, then record emissions per batch in minutes (e.g. 5 lb VOC/20 minute batch).

[4] Indicate method used to determine emission rate as follows: MB = material balance; ST = stack test (give date of test); EE = engineering estimate; O = other (specify).

Section 13

Attachment L
Emission Unit Data Sheet
(INCINERATOR)

Control Device ID No. (must match List Form):

Equipment Information

1. Manufacturer: Facultatieve Technologies	2. Model No. FT ISI 60
3. On a separate sheet sketch or draw the proposed incinerator showing the location and dimensions (inside and out) of (1) the primary combustion chamber, (2) the secondary combustion chamber, (3) the flame port, (4) auxiliary burners, and (5) dampers **with special emphasis on dimensions of the flame port and secondary combustion chambers (inside). Also,** sketch in the minimum distance the gas travels through the secondary combustion chamber.	
4. Rated capacity of the incinerator for the type of waste to be burned: Maximum: 140 lb/hr Typical: 140 lb/hr Annual: 204 tons/yr	
5. By what means is waste charged? ☒ Batch ☐ Continuous ☐ Periodically	
6. Type: ☐ Multiple Chamber ☐ Single Chamber ☒ Other, specify: Primary & Secondary Chamber	
7. Projected operating schedule: 8 hr/day 365 day/yr	

Primary Combustion Chamber

8. Volume: 70 ft^3	9. Effective grate area: 20 ft^2
10. Maximum temperature: 1500 °F	11. Burning rate: 7 $lb/ft^2/hr$
12. Heat release in primary chamber: 9375 $BTU/hr/ft^3$	13. Total heat release in incinerator: 9375 $BTU/hr/ft^3$

Secondary Combustion Chamber

14. Volume: 150 ft^3	15. Cross sectional area: 50 ft^2
16. Volume of gas through secondary combustion chamber: 1657 ACFM @ 1650 °F	17. Gas velocity through secondary combustion chamber: 43.4 ft/sec
18. Minimum gas temperature: 1600 °F	19. Minimum retention time of gas: 1 sec
20. Minimum distance of gas travel through secondary combustion chamber: 16 ft	21. Location of air admission: Seconday air valve

Flame Port

22. Flame port area: 0.102 ft^2	23. Velocity through flame port: 315 ft/sec

Dampers

24. Type: Butterfly	25. Number 1
26. Diameter: 6 inches	27. Capacity: 500 ACFM @ 50 °F

Combustion Air

28. Type of draft: ☒ Natural
☐ Sliding damper ☐ Forced
☐ Barametric damper ☐ Induced
Windshielding? ☐ Yes ☐ No

29. If draft is forced or induced, describe ID fans or blowers:

Number	
HP rating	HP
Rated flow	ft^3/min
Rated speed	RPM
Fan rated draft	in. H_2O

30. Theoretical air/refuse ratio: 6.1 lb air/lb refuse

31. Percent of total air applied as:

variable	overfire air
variable	underfire air

Auxiliary Burners

32. Proposed type and fuel: Natural Gas

33. **Primary Burner**
Capacity: .75 MMBTU/hr
Number: 1
Manufacture: Facultatieve Technologies
Model: HH-VFB 350
Estimated capacity: .75 BTU/hr
Fuel: Gas
How controlled? Temperature Controller
Is there a temperature indicator? ☒ Yes ☐ No
How temperature recorded? Chart Recorder

34. **Secondary Burner**
Capacity: 1.5 MMBTU/hr
Number: 1
Manufacture: Facultatieve Technologies
Model: HH-VFB 350
Estimated capacity: 1.2 BTU/hr
Fuel: Gas
How controlled? Temperature Controller
Is there a temperature indicator? ☒ Yes ☐ No
How temperature recorded? Chart Recorder

Miscellaneous Devices and Controls

35. Automatic loading device. ☐ Yes ☒ No
If yes, describe.

36. Self closing doors. ☐ Yes ☒ No

37. Sparks arrestor ☐ Yes ☒ No

38. Flame failure protection equipment ☒ Yes ☐ No

39. Method of creating turbulence for combustion gases.
Describe.
Multiple changes of directoons due to internal baffle walls

40. Method of cleaning secondary or settling chamber.
Describe.
Clean out ports allow rodding and raking of all gas passes

41. Other interlocking devices or controls. If yes, describe. ☐ Yes ☒ No

Installation

42. Indoor Installation: ☒ Yes ☐ No
If yes, describe method of supplying combustion air.
Appropriately sized louver in external wall

43. Outdoor Installation: ☐ Yes ☐ No

Stack or Vent Data

44. Inside diameter or dimensions: 1.5 ft	45. Gas exit temperature: 810 °F
46. Height: 30 ft	47. Stack serves: ☒ This equipment only ☐ Other equipment also (submit type and rating of all other equipment exhausted through this stack or vent)
48. Gas flow rate: 2850 ft/min	
49. Estimated percent of moisture: 7.19 %	

Waste

50. Source of waste: ☐ Hospital ☐ Restaurant ☐ Store ☐ Industry ☐ Apartment ☒ Crematory ☐ Warehouse ☐ Public Institution ☐ Other, specify:

51. Describe fully, in detail, the composition of waste feed to the incinerator:
Animal Cadavers

52. Expected BTU/lb as fired: 4630 BTU/lb	53. Daily amount: 1100 lb
54. Does incinerator have a charge hopper ☐ Yes ☒ No	55. What is the volume of the charge hopper? ft^3
56. Does the charge hopper have automatic control? ☐ Yes ☒ No	57. Is the waste charged to the incinerator weighed? ☒ Yes ☐ No
58. Is the secondary chamber preheated prior to charging waste? ☒ Yes ☐ No	59. At what secondary temperature does waste charging begin? 1600 °F
60. Is the ash waste quenched? ☐ Yes ☒ No	61. Is all the waste burned generated on site? ☐ Yes ☒ No

62. For hospital waste, is the ash inspected for recognizable combustible components? ☐ Yes ☐ No

63. For hospital waste, are recognizable combustible components of the ash reburned? ☐ Yes ☐ No

64. Is any waste received from outside the local government boundary? ☐ Yes ☐ No

65. Are hazardous or special waste burned? ☐ Yes ☒ No If yes, please describe:	66. Are potential infectious waste burned? ☐ Yes ☒ No

67. How will the waste material from process and control equipment be disposed of?
Return to family

68. Method of charging waste solids: ☒ Manual ☐ Manual charge hopper ☐ Automatic charge hopper ☐ Other, specify:	69. Method of feeding liquids: ☐ Lab pack ☐ Injection as a primary burner fuel ☐ Injection as a secondary burner fuel ☐ Other, specify:
70. Rated steam flow – heat recovery boiler: NA lbs/hr	71. Rated pressure – recovery boiler: NA PSIG

Emissions Stream

72. Emission rates:

Pollutant	Pounds per Hour lb/hr	grain/ACF	@ °F	PSIA	Tons per Year Tons/yr	Parts per Million ppm
CO	up to 0.081	0.0057	750	14.7	up to 0.08	29
Hydrocarbons	Part of VOC's					
NO_x	up to 0.254	0.0179	750	14.7	up to 0.24	55
Pb	-	-	-	-	-	-
PM_{10}	up to 0.163	0.0114	750	14.7	up to 0.15	-
SO_2	up to 0.163	0.0114	750	14.7	up to 0.15	25
VOCs	up to 0.016	0.0011	750	14.7	up yo 0.02	10
Other (specify) HCI	up to 0.163	0.0114	750	14.7	up to 0.15	45
Hg	0	0	--	--	0	0

73. If an *Air Pollution Control Device* is not submitted, the emission rates should be the same as those reported home "Maximum Potential and Maximum Actual Emissions" on the *Emission Points Data Summary Sheet*.

74. Emissions rates should be substantiated by submitting *stack test data* and/or *calculations*.

Fuel Usage Data

75. Estimated annual fuel cost: $

76. Firing rate: Maximum: 2 mmBTU/hr
Typical: 2 mmBTU/hr
Design: 2 mmBTU/hr

77. Fuel type: ☒ Natural Gas ☐ Coal ☐ Fuel Oil, No. ☐ Other, specify:

78. Typical heating content of fuel: 1037 BTU/cu.ft.

79. Typical fuel sulfur content: 0 wt. %

80. Typical fuel ash content: 0 wt. %

81. Annual fuel usage: 1,000,000 cu.ft.

82. Please complete an *Air Pollution Control Device Sheet(s)* for the control(s) used on this Emission Unit, if applicable.

83. Have you included the ***air pollution rates*** on the Emissions Points Data Summary Sheet? Yes

84. **Proposed Monitoring, Recordkeeping, Reporting, and Testing**

Please propose monitoring, recordkeeping, and reporting in order to demonstrate compliance with the proposed operating parameters. Please propose testing in order to demonstrate compliance with the proposed emissions limits.

MONITORING PLAN: Please list (1) describe the process parameters and how they were chosen (2) the ranges and how they were established for monitoring to demonstrate compliance with the operation of this process equipment operation or air pollution control device.

The Facultatieve Technologies Model ISI 60 is set to operate on temperature set points for both the primary and secondary chambers. The amount of secondary air that is entered into the system to regulate the oxygen levels is dictated by the secondary chamber temperature, and the more the temperature rises the more secondary air is entered into the system. The primary chamber burner will operate up to a certain temperature set by our engineer, and will only operate if the secondary chamber is above the required minimum temperature of 1600 F. Temperatures are indicated on digital readouts mounted on control panel.

TESTING PLAN: Please describe any proposed emissions testing for this process equipment or air pollution control device.

Emission testing is not required by the State of West Virginia Department of Environmental Protection, Division of Air Quality. Therefore, we do not propose any testing for this processing equipment. We understand that if requested, stack/emissions testing for this animal cremator will be performed.

RECORDKEEPING: Please describe the proposed recordkeeping that will accompany the monitoring.

The Facultatieve Technologies Model ISI 60 has a circular chart recorder that will record the temperature in the seconday chamber 24 hours per day. Cooke Crematory operators keep records in log books of each animal cremation performed. Each cremation is manually recorded with the following information (1) date of cremation (2) start & finish time (3) weight of cremation to be performed

REPORTING: Please describe the proposed frequency of reporting of the recordkeeping.

Log books and chart recorder disks are kept for each 24 hours of operation are are availbe any time o regulators. Information is available for a minimum of five (5) years from date of cremation

85. Please describe all operating ranges and maintenance procedures required by Manufacturer to maintain warranty.

The Facultatieve Technologies Model ISI 60 is designed to be operated for long periods of time between maintenance schedules, however a once per year service agreement is in place to allow certified Facultatieve Technologies engineers to review the cremator for proper operation of all componets and correct any issues with the operation of the cremator.

Section 14

This Section Not Used

Section 15

Attachment N

Estimated Normal Emissions

Estimated Unabated Pollutants from Cremators

Normalised 0°C 11% O_2 dry basis

Pollutant	Units	Josselin 03/11	Use	Mass		lb/h	Grain/Acf	Grain/scf	PPM	
Dioxin	ng/m³	Not measured	1	369 ng/h	766929 ng/yr	8.1E-07	0.0000	0.0000		0.00 ton/yr
PAH	mg/m³	Not measured	0	0 mg/h	0 mg/yr	0.000	0.0000	0.0000	0	0.00 ton/yr
TEQ	ng/m³	Not measured	0	0 ng/h	0 ng/yr	0.000	0.0000	0.0000		0.00 ton/yr
Mercury	mg/m³	Not measured	**0**	0 mg/h	0 mg/yr	0.000	0.0000	0.0000	0.0	0.00 ton/yr
Heavy Metals	mg/m³	0.06	0.06	22 mg/h	46016 mg/yr	0.000	0.0000	0.0000		0.00 ton/yr
Particulate	mg/m³	54.3	**200**	73743 mg/h	153385719 mg/yr	0.163	0.0114	0.0814		0.15 ton/yr
HCl	mg/m³	40.05	**200**	73743 mg/h	153385719 mg/yr	0.163	0.0114	0.0814	45	0.15 ton/yr
HF	mg/m³	Not measured	**2**	737 mg/h	1533857 mg/yr	0.002	0.0001	0.0008	1	0.00 ton/yr
SO_x	mg/m³	121.76	**200**	73743 mg/h	153385719 mg/yr	0.163	0.0114	0.0814	25	0.15 ton/yr
NO_x (as NO_2)	mg/m³	279.5	313	115276 mg/h	239773309 mg/yr	0.254	0.0179	0.1273	55	0.24 ton/yr
CO	mg/m³	12.8	**100**	36872 mg/h	76692859 mg/yr	0.081	0.0057	0.0407	29	0.08 ton/yr
VOC	mg/m³	2.39	**20**	7374 mg/h	15338572 mg/yr	0.016	0.0011	0.0081	10	0.02 ton/yr
NO	mg/m³	(also included in NO_x above)	**200**	73743 mg/h	153385719 mg/yr	0.163	0.0114	0.0814	54	0.15 ton/yr
NO_2	mg/m³	(also included in NO_x above)	**6**	2212 mg/h	4601572 mg/yr	0.005	0.0003	0.0024	1	0.00 ton/yr

Flue Gas Oxygen	17.34	%v/v dry			
Flue Gas Moisture	7.19	%v/v			
Flue Gas Volume	2820	Am³/h	1096 Nm³/h wet	1017 Nm³/h dry	369 Nm³/h (11%O_2 dry gas)
Flue Gas Temperature	430	°C			233 scfm (11% O2 dry gas at 20°C)

8	hour day	**4**	Cremations per day
5	days per week	20	Cremations per week
52	weeks per year	1040	Cremations per year
2080	hours per year		

Facultatieve Technologies
Cremation & Incineration Equipment

Drawn Ernie Kassoff	Title Estimated Emissions Inventory
Date June 29, 2015	
Project ISI 60 Cooke Animal Crematory	EI 0001

Section 16

Attachment O

Monitoring, Recordkeeping, Reporting and Testing Plans

Monitoring:

The Facultatieve Technologies Model ISI 60 is set to operate on temperature set points for both the primary and secondary chambers. The amount of secondary air that is entered into the system to regulate the oxygen levels is dictated by the secondary chamber temperature, and the more the temperature rises the more secondary air is entered into the system. The primary chamber burner will operate up to a certain temperature set by our engineer, and will only operate if the secondary chamber is above the required minimum temperature of 1600 F. Temperatures are indicated on digital readouts mounted on control panel.

Recordkeeping:

The Facultatieve Technologies Model ISI 60 has a circular chart recorder that will record the temperature in the secondary chamber 24 hours per day. Cooke Crematory operators keep records in log books of each animal cremation performed. Each cremation is manually recorded with the following information (1) date of cremation (2) start & finish time (3) weight of cremation to be performed

Reporting:

Log books and chart recorder disks are kept for each 24 hours of operation are available any time o regulators. Information is available for a minimum of five (5) years from date of cremation ***Testing***

Test Plan:

Emission testing is not required by the Division of Air Quality, however we understand if requested both stack testing and/or emissions tests will be provided.

Section 17

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Cooke Pet Crematorium, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a Modification Permit for a crematory located on 2002 20th Street, Nitro, in Kanawha County, West Virginia.

The applicant estimates the increased potential to discharge the following Regulated Air Pollutants will be:

Particulate Matter (PM_{10})	up to 0.00 tons per year
Carbon monoxide (CO)	up to 0.08 tons per year
Nitrogen Oxide (NO_X)	up to 0.24 tons per year
Sulfer Dioxide (SO_2)	up to 0.15 tons per year
Hydrocarbons (part of VOC)	up to 0.02 tons per year
Hydrogen Chloride (HCl)	up to 0.15 tons per year
Mercury (Hg)	up to 0.00 tons per year

Startup of operation is planned to begin on or about the 15th day of September, 2015. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the ___ day of _____, 2012

By: Cooke Pet Crematorium, LLC
Roger Cooke
President
P.O. Box 145
Nitro, WV, 25143

Section 18

This Section Not Used

Section 19

This Section Not Used

Section 20

This Section Not Used

Section 21

FT ISI 60 Technical Specifications

Facultatieve Technologies
Cremation & Incineration Equipment

FT ISI 60
Animal Cremator

ISI – 60

Height 9’ – 8 1/2”
Width 7’ x 10”
Length 12’ x 3”
Weight 29,000 lbs (inc. stack)
Fuel Natural gas
Charge opening 36”W x 30”H x 4”
Maximum batch load 700 lbs
Burn rate 140 lbs/h

Burner ratings

Primary burner 750,000 btu/h max
Secondary burner 1,5 mbtu/h max
Natural gas usage typically 1,000 cf/h

Facultatieve Technologies
Cremation & Incineration Equipment

BENEFITS OF FACULTATIEVE TECHNOLOGIES ISI ANIMAL CREMATORS

There are **four** (4) main benefits designed into the Facultatieve Technologies ISI Series Animal Cremators enabling them to be manufactured with a high quality of workmanship and provide unmatched performance in the animal cremation market.

1. *Modular Construction*

The Facultatieve Technologies *ISI Series Animal* cremators modular construction enables the cremator to be fully assembled and tested under close supervision within our American manufacturing facility located in Medina, Ohio. Every Facultatieve Technologies *ISI Series Animal Crematory* is completely piped, wired and test fired prior to shipping**.** This insures a smooth and efficient installation. Once commissioned, the cremator can be put on-line, enabling the client to maximize his operations while minimizing down time.

2. *High Technology Insulation Materials*

The Facultatieve Technologies *ISI Animal Cremator* design utilizes the most modern insulation materials, including micro porous materials. This reduces heat rejection from the cremator refractory shell, while optimizing the heat retention within the cremator.

These modern insulation materials increase the efficiency of the cremation process and the durability of the lining. Longer brick and refractory life, means less maintenance and repair costs.

3. Specific Materials Used for Hearth Floor

Facultatieve Technologies ISI Animal Cremators utilize specially designed tiles for the hearth floor. Due to the nature of the biological animal content the hearth floor that is used for a human cremation machines will not withstand the oils/fat that animals release during the cremation process. The Facultatieve Technologies tile design allows the oils/fat to pass through the tiles (no pooling) and super heated and eliminated in the secondary chamber thus reducing the possibility of damage to the hearth floor. This system ensures that the life of the hearth floor is maximized.

4. *User Friendly Control System for Operation and Commissioning*

Facultatieve Technologies *ISI Animal Cremators* are designed with industry standard and very simple, yet fully automatic controls. Both the combustion air and fuel are automatically modulated based on chamber temperature to conserve fuel and insure a clean and efficient cremation cycle.

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Facultatieve Technologies Technology Advantages

Operating System

The control system fitted to all Facultatieve Technologies ISI Series Animal Cremators is based upon the use of basic relay logic with user friendly and industry standard controls. Relay and timer logic keep the system simple and easy to maintain and troubleshoot. All of our control panels are designed and fabricated in a UL approved panel shop and carry all UL Labels and documentation.

All Facultatieve Technologies ISI Series Cremators are fully automatic and controlled by a temperature based system. There are digital temperature controllers that sense the temperature in each combustion chamber and then automatically control the gas and air. For example, if a large case is being cremated and the temperature starts to rise, the controllers will automatically modulate the burners and combustion air to keep the temperatures within safe limits.

The benefits of our combustion engineering and knowledge are wide ranging:

- Fast and Efficient Cremation Performance
- Energy Efficiency – Minimal Fuel Usage
- Exceptional Environmental Performance
- High Levels of Automation
  - ❖ Equipment Requiring Little or No Manual Intervention.

Energy Efficiency

Energy efficiency isn't just about how well a cremator is controlled; it has to be designed into the product on the drawing board. Facultatieve Technologies ISI Animal Cremators are the result of just that - the selection of modern refractory and insulation materials utilized ensures the most advanced energy efficiency.

To ensure excellent energy efficiency all Facultatieve Technologies ISI Animal Cremators are fitted with a modulating secondary chamber burner. The highly developed control system fires the burner at the **required rate** for each individual cremation, and not simply on/off or high/low fire. The cremation burner is also fully modulating to yield the same results. The result of such a design feature is **lower energy consumption**, and better controlled emissions to ensure a higher degree of environmental compliance.

Facultatieve Technologies can attest to the fact that **fuel** consumption varies upon number of cremations accomplished per day by the cremator, the type of container used, and the composition of the animals. With proper operation we would expect a cremator to consume less gas (average) the more cremations it makes per day.

Burner Information

To ensure minimal fuel usage, the two burners fitted to all Facultatieve Technologies ISI Animal Cremators are configured for ***fully modulating control,*** and are ignited automatically. The burner system is protected against flame failure, thereby complying with all federal, state and local regulations.

The main chamber burner has an operational rating of 750,000 btu/h, which enables normal operating temperature in the range of 1,200°F to be achieved in the main chamber.

The secondary combustion zone burner has a maximum rating of 2,000,000 btu/h which enable minimum temperatures of 1,800°F to be achieved in the secondary chamber as required by many state Environmental Regulations.

Burner Data

Please see attached burner specifications for the Facultatieve Technologies HH-VFB 350 Low NOx Burner that is used on all FT ISI animal cremators**.**

Environmental Compliance

Facultatieve Technologies ISI Series Animal Cremators are designed to ensure environmental compliance throughout all the cremation markets of the US. They are designed to ensure a residence time in excess of one (1) second in the cremators secondary chamber during all periods of operation while maintaining a minimum temperature of 1800°F in the secondary combustion chamber. The secondary chamber minimum operating temperature is normally specified in the terms and conditions of the local EPA or air quality operating permit.

Modular Design

To **maximize** the **possibilities** of installation, the modular design of Facultatieve Technologies ISI Animal Cremators allows the modification of the flue gas discharge stack and can be supplied in a number of different configurations. The flue gas discharge stack can be configured for **TOP** outlet, **BOTTOM** outlet, or **SIDE** outlet, and all these options available in right hand or left hand versions. The standard design is top left discharge. This enables the Facultatieve Technologies ISI Series Animal Cremators to be installed to fit your application in numerous variations allowing installation flexibility.

Ash Removal

Facultatieve Technologies ISI Series Animal Cremators are single end design which requires the cremated remains to be removed from the front of the machine near the loading door. After the cremation cycle, the system automatically goes into a cooldown cycle (generally 60-90 minutes). Once the chamber is cool enough for removal, the cremated remains can be raked and brushed into the cremated remains collection tray.

Performance and Capacity

The capacity of the crematory is different for each model. The cremation time is dependent on size and composition of animal(s), type of container (if any), and the number of cremation cycles in that day.

End of Section

Facultatieve Technologies
Cremation & Incineration Equipment

SPECIFICATIONS for ISI-60 ANIMAL CREMATOR

DESIGN PARAMETERS:

The cremation chamber is designed to be loaded after the chamber has completed the cool-down cycle from the previous cremation. To begin the burn cycle, the loading door is closed and the start button is actuated. The afterburner will drive to high fire and begin preheating the secondary chamber to the desired temperature. When the secondary chamber temperature is reached (approximately 30-45 minutes from cold start), the cremation chamber burner ignites. The burn cycle continues until the adjustable 0-5 hour timer times out. A second adjustable cool-down timer then takes control, turning off the burners and allowing the blower air to force-cool the chambers. The cremains removal is done when the furnace is cool prior to loading the next batch. The burn cycle depends on the size of the load and animal composition; the normal cool-down period is 90 minutes.

The ISI-60 incorporates a "hot hearth" design. The animals are cremated on a hot hearth. The exhaust gases circulate under the hearth where the afterburner is located prior to being discharged to the stack. Hot hearths are the most efficient design for incinerating pathological waste. The heat from the afterburner radiates up through the hearth helping to burn the animal and its greases and liquids.

MATERIALS TO BE CREMATED:		Animals	
MAXIMUM CHARGE SIZE:		700 lbs.	
BURN RATE:		140 lbs./hour	
CYCLE TIMERS:		Preheat timer	0-60 minutes
		Burn timer	0-6 hrs
		Cool-Down timer	0-6 hrs
FUEL:	**Natural Gas**	maximum	2,750,000 btu/hr
		Required Pressure	2 psi (regulated)
		Avg. consumption	1,200 cfh natural gas
ELECTRICAL:		220 V, 1 PH, 60 Hz, 60 Amp service (standard)	
		Optional:	
		230/460 V, 3 PH, 60 Hz, 60 Amp service	
		(3-phase electric required for ejector fan option)	
		Note: *all electric service must have neutral wire of equal gauge size as hot and ground wires.*	
OUTSIDE MACHINE DIMENSIONS		13'-5" L x 7'-10" W x 10'H	

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CONCRETE PAD:	14' L x 10' W x 6" reinforced concrete **Recommendation:** 25' x 13' x 6" thick reinforced concrete (This allows 3' clearance around retort and 8' in front for loading)

PRIMARY CHAMBER:

Shell:	A ½" steel plate on front wall, ¼" ga. steel on back wall and sides reinforced with structural angle and channel. All seems are continuous welded
Internal Dimensions:	5'L x 4'W x 3'-6" H (70 cu. ft.)
Hearth Area:	4'W x 5'L (20 sq. ft.)
Operating Temperature:	Ambient to 2,400°F
Burner:	Roof mounted FT HH-VFB 350 burner 100-750,000 btu / h each Fully modulating
Refractory:	***Hot Hearth*** – 3" Tiles made out of special Castable Refractory designed to work with Animal Grease and Liquids. Working surface is 2,800°F, super-duty, abrasion and thermal shock resistant castable. **Side Walls** – 2" mineral wool block insulation with 4-1/2" super-duty firebrick. **Bridge Wall** – 9" super-duty firebrick **Roof** – 4-1/2" 2,800°F castable with 2" loose fill ceramic fiber insulation.
Loading Door:	36"W x 30"H x 4" thick, refractory lined Electric Hoist operated, guillotine style
Thermocouple:	18" long, type K with ceramic protection tube.

SECONDARY CHAMBER:

Shell:	**Side walls** – same as primary chamber
	Base – structural I-beam skid base with ¼" plate floor and front wall (continuous weld)
Retention Time:	1-second at 1,800°F minimum
Combustion Air:	The air required to complete the combustion of the off gases are introduced through the afterburner and through the secondary air manifolds. The secondary air is fully modulated based on temperature to help conserve fuel.
Afterburner:	FT HH-VFB 350 burner
	100-2,000,000 btu / h
	Fully modulating
Refractory:	**Side Walls** – 2" mineral wool block insulation with 4-1/2" super-duty firebrick
	Tunnels – 2,800°F castable refractory
	Floor – 2" insulation material topped with 4½" super duty firebrick for a solid floor
Thermocouple:	18" type K with ceramic protection tube

STACK:

12 gauge steel shell that is flanged and bolted together in 4' sections. Total of 5 (five) sections for a height of 20 feet assembled.

18" I.D. / 24" O.D.

Lined with1/4" ceramic paper and 2¾" of castable refractory (2800°F rating)

Painted with two (2) coats of high temperature paint.

Optional:

10' long 1/8" stainless steel, flanged and bolted to Coander, unlined and to only be used with Coander Induced Draft System which cools exhaust gases to 500°F

PAINT AND PREPARATION:

All exterior metal parts are machine tool cleaned and painted with 2 coats of high temperature paint (ISI-gray). Machine is wrapped in decorative sheet steel cladding, powder coated for esthetics.

COMBUSTION AIR BLOWER:	Direct drive, high-pressure blower, 5-hp
ID DRAFT BLOWER:	3 Phase Inverter Driven 5 HP Blower
PIPING:	The retort will be completely piped and pre-assembled for shop testing. There will be a 2" NPT union for the gas service connection on the rear of the machine.
WIRING:	The entire retort will be pre-wired and tested at our manufacturing facility prior to shipment. Wiring upon installation only requires one main service to the control panel (by others)

CONTROLS & INSTRUMENTATION

CONTROL PANEL	All of the controls and instrumentation will be mounted in a UL approved, NEMA 4 control panel.
Temperature Controllers:	Three (3) total – primary burner, afterburner and secondary combustion air.
	1/16 DIN Future Design Controls (model 9300 or equivalent)
7-Day Temp. Chart Recorder:	Single pen, continuously records secondary chamber temperature
	Future Design Controls DR 5000 (or equivalent)
Timers:	ATC, Series 425 (or equivalent)
	Digital readout, adjustable
Limit Switch for Load Door:	Disables primary burner if door is opened
Optional:	
Weathering for Outdoor Install	Rigid conduit with weather seals at all connections. Weather hoods over all burners and gas train
	Rain shield over top of control panel.

ESTIMATED SHIPPING WEIGHT: 25,000 LBS (including stack)

Facultatieve Technologies
Cremation & Incineration Equipment

THE HH-VFB 350 Hot Head Gas Burner

The HH-VFB 350 burner is manufactured by Facultatieve Technologies specifically for use on cremators.

Cremators require different flame shapes and characteristics than are available with most other types of burner.

Firing range: 120 to 450 kW
(400,000 to 1.54 million Btu/hour)

Fuel: Natural Gas
Calorific Value (gross) 35 to 45 MJ/m^3
(940 to 1200 Btu/ft^3)

Test carried out:
The firing test for thermal NOx formation by the HH-VFB 350 burner was carried out with the burners firing into a cremator at their normal firing levels.

Primary burner: 280 kW
(0.95 million Btu/hour)

Secondary burner: 320 kW
(1.1 million Btu/hour)

Test date: January 13th, 2012

Measured NOx 39.4 ppm dry gas corrected to 3% oxygen

Low NOx limit 60 ppm

A Mallalieu
Vice President Technical

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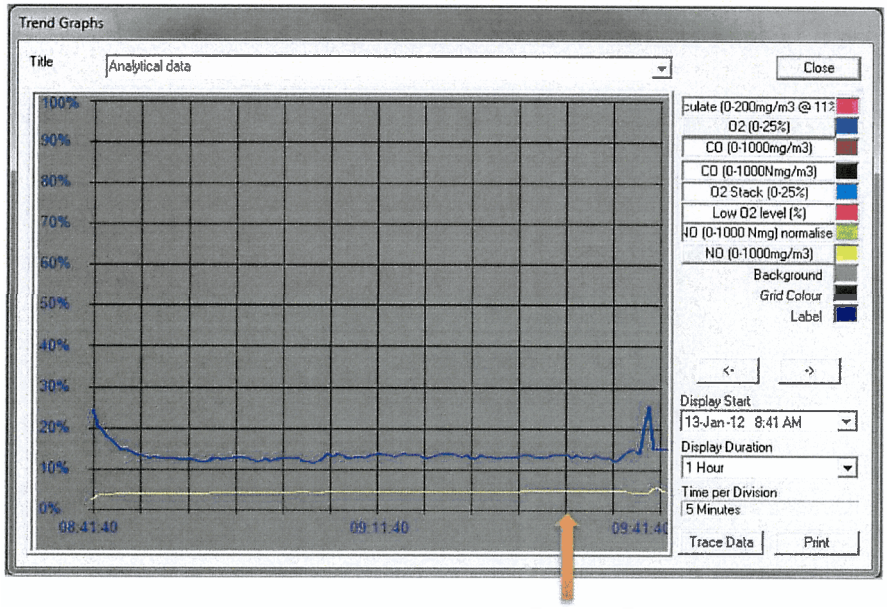
FT-LTD 1001

Cremator Burner NOx evaluation

Test results
Rawdon Crematorium, Leeds, England, FTII preheat 13th January 2012 (gas burners only firing)



Using data time ~ 09:40

NO	49	mg/m³ actual dry gas at 0℃
Oxygen	3.6	%v/v wet basis

Burners	Natural Gas	
Main Burner	250	kW net
Afterburner	350	kW net
Total	600	kW net

Calculated burner gases:

Temperature 850 ℃

	kg/h	Nm³/h	Am³/h	% v/v dry	% v/v total
Carbon Dioxide	121	61	252	9.47	8.00
Oxygen	39	28	114	4.26	3.60
Nitrogen	703	560	2301	86.27	72.91
Nitric Oxide	0.032	0.024	0.098	0.00	0.00
Hydrogen Chloride	0	0	0	0.00	0.00
Water Vapour	96	119	489		15.49
	959	767	3156	100.00	100.00

NO measured	**49**	mg/m³ dry gas
Dry gas volume	649	Nm³/h
Mass emission NO	0.032	kg/h
Volume emission NO	0.024	Nm³/h
Volumetric emission NO	36.60	ppm actual gas, dry 0℃
Volumetric emission NO corrected	**39.36**	**ppm dry gas, 0℃, 3% oxygen**

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