CHATTA NOOGA

Alan Frazier <afrazier@chattanooga.gov>

# Woodbridge Formed Plastic

3 messages

**Jeb Barrett** <jbarrett@marionenv.com>
To: afrazier@chattanooga.gov

Tue, Jun 2, 2026 at 10:30 AM

Alan
Attached is the application packet for Woodbridge's new boilers. The first boiler is going in this year and the second one next year. I am not sure what the application fee is. If you can send me that amount I can get them to cut the check.Let me know if there are any questions. Thanks

**Jeb Barrett, PG** | Senior Geologist
**Marion Environmental, Inc.**| 115 Parmenas Lane, Chattanooga, TN
Home Office: 423.499.4919 | Fax: 423.892.5122 | Cell: 423.667.1738
**24-HOUR EMERGENCY RESPONSE 888.888.8149**

MEI

***WOMAN OWNED BUSINESS***
**REGIONAL OFFICES:** ATLANTA 404.274.9289 | DALTON 706.463.6637 | KNOXVILLE 865.525.7117 | NASHVILLE 615.490.6872 | TRI-CITIES 423-797-0964 | BIRMINGHAM 205.290.5853 | CHARLOTTE 704.635.7479 | PHILADELPHIA 267.500.2110 | TIFTON |
**NON-HAZ TREATMENT FACILITY:** CHATTANOOGA 423.265.0132



**Woodbridge Amnicola Boiler Application.pdf**
5089K

**Alan Frazier** <afrazier@chattanooga.gov>
To: Jeb Barrett <jbarrett@marionenv.com>
Cc: Miguel Vega <mvega@chattanooga.gov>

Tue, Jun 2, 2026 at 12:10 PM

Jeb,

Thank you for the application regarding two proposed boilers at the new facility for Woodbridge Chattanooga Formed Plastics LP. As we discussed by phone, please respond to the following three questions for me when you have the opportunity.

1.) Will the new boilers be equipped with "low-NOx" burners? If so, we can use a lower nitrogen oxides (NOx) emission factor for the boilers.

2.) The particulate matter (PM) emission factor of 0.030 lb/MMBtu that was used is four times higher than the AP-42 PM emission factor of (7.6 lb/10^6 scf / 1,020 MMBtu/10^6 scf) = 0.0075 lb/MMBtu. Is the higher factor a mistake?

3.) There is no application for a "batch polystyrene pre-expander" such as is permitted at the existing facility. Will one be located at the new facility?

Attached are copies of the current inspection report for the existing facility and the certificate of operation for the existing batch polystyrene pre-expander.

Kind regards,

Alan

J. Alan Frazier, P.E.
Engineering Manager
**Chattanooga-Hamilton County**
**Air Pollution Control Bureau**
CBL Center II
2034 Hamilton Place Blvd., Suite 300
Chattanooga, TN 37421-6127
Direct: 423.643.5978
Cell: 423.718.1479
Main: 423.643.5970
afrazier@chattanooga.gov
apcb.org
[Quoted text hidden]

---

**2 attachments**

**Woodbridge Chatt. Formed Plastics - 2026 Inspection Report.pdf**
514K

**Woodbridge Chatt. Formed Plastics - Certificate -02C.pdf**
261K

---

**Jeb Barrett** <jbarrett@marionenv.com> Tue, Jun 2, 2026 at 3:00 PM
To: Alan Frazier <afrazier@chattanooga.gov>
Cc: Miguel Vega <mvega@chattanooga.gov>, gbarrett@marionenv.com

Alan,
Attached are the updated forms. Our engineer was putting in worse case scenarios. That is my fault. Also, Woodbridge will not be using the pre-expander at this site. They will be using the electric version of the attached oven though. Since it is Electric and they won't be using it it to cure anything that off gases VOCs, I do not believe that it will require permitting, but correct me if I am wrong.

**Jeb Barrett, PG** | Senior Geologist
**Marion Environmental, Inc.**| 115 Parmenas Lane, Chattanooga, TN
Home Office: 423.499.4919 | Fax: 423.892.5122 | Cell: 423.667.1738
**24-HOUR EMERGENCY RESPONSE 888.888.8149**




**Original Message from Alan Frazier <afrazier@chattanooga.gov>**
Date: 2026-06-02 12:08:30
Subject: Re: Woodbridge Formed Plastic
To: Jeb Barrett<jbarrett@marionenv.com>
cc: Miguel Vega<mvega@chattanooga.gov>

Jeb,

Thank you for the application regarding two proposed boilers at the new facility for Woodbridge Chattanooga Formed Plastics LP. As we discussed by phone, please respond to the following three questions for me when you have the

opportunity.

1.) Will the new boilers be equipped with "low-NOx" burners? If so, we can use a lower nitrogen oxides (NOx) emission factor for the boilers.

2.) The particulate matter (PM) emission factor of 0.030 lb/MMBtu that was used is four times higher than the AP-42 PM emission factor of (7.6 lb/10^6 scf / 1,020 MMBtu/10^6 scf) = 0.0075 lb/MMBtu. Is the higher factor a mistake?

3.) There is no application for a "batch polystyrene pre-expander" such as is permitted at the existing facility. Will one be located at the new facility?

Attached are copies of the current inspection report for the existing facility and the certificate of operation for the existing batch polystyrene pre-expander.

Kind regards,
Alan

J. Alan Frazier, P.E.
Engineering Manager
**Chattanooga-Hamilton County**
**Air Pollution Control Bureau**
CBL Center II
2034 Hamilton Place Blvd., Suite 300
Chattanooga, TN 37421-6127
Direct: 423.643.5978
Cell: 423.718.1479
Main: 423.643.5970
afrazier@chattanooga.gov
apcb.org

[Quoted text hidden]

---

**2 attachments**

**Woodbridge Amnicola Boiler Application.pdf**
5094K

**Owners Manual - C267 - TAD_TFD Series - 320254B.pdf**
2545K

CHATTA NOOGA

Alan Frazier <afrazier@chattanooga.gov>

# Fwd: Low NOx emission citations

1 message

**Jeb Barrett** <jbarrett@marionenv.com>
To: Alan Frazier <afrazier@chattanooga.gov>

Thu, Jun 4, 2026 at 3:30 PM

From my engineer. Do you need this in a letter form?

**Jeb Barrett, PG** | Senior Geologist
**Marion Environmental, Inc.**| 115 Parmenas Lane, Chattanooga, TN
Home Office: 423.499.4919 | Fax: 423.892.5122 | Cell: 423.667.1738
**24-HOUR EMERGENCY RESPONSE 888.888.8149**

MEI



**Original Message from "GRAHAM BARRETT" <gbarrett@marionenv.com>**
Date: 2026-06-04 15:28:57
Subject: Low NOx emission citations
To: Jeb Barrett <jbarrett@marionenv.com>

Across many different boiler manufacturers and engineering firms, **low NOx burners are defined as sub 30ppm setups.**

In the boiler drawings, sent by Power Mechanical Inc. (Boiler Manufacturer) to Woodbridge Formed Plastics LP, the emission notes indicate that the boiler is a "low NOx" boiler with a **maximum heat input of 25.2 MMBTU/hr**. More specifically, the boiler application emission notes read "NOx: 30ppm DV @ 3% o2" (1).

The emission factor used in the air permit application (0.04 lbs/MMBTU) is calculated in the attached document from Utah Department of Environmental Quality (UDAQ). They mention how they calculated the emission factors for boilers rated with maximum heat inputs of 2-5 MMBTU based on AP-42: "This emission factor is 100 lb/MMscf, which AP-42 advises in footnote a to convert to lb/MMBtu by dividing by 1,020" (2). Then go on to discuss, "For the greater than 5 MMBtu grouping, UDAQ assumed the emission rate of 30 ppm NOx" (2) which is equivalent emission rates as the boiler acquired by Woodbridge. UDAQ walking through their mathematical process to find the 30ppm emission factor for boilers with heat inputs >5MMBTU/hr, "UDAQ multiplied lbs/MMBtu by 833 to find ppm NOx. Therefore **30 ppm NOx converts back to 0.04 lbs/MMBtu** for emissions reduction calculation purposes." $30\,ppm \cdot \frac{1\,lb}{833\,ppm \cdot MMBtu} = 0.03601\,lb/MMBtu$

In the April 2026 version of AP-42 1.4-6, Small Boilers (<100 MMBTU/hr heat input) with low NOx burners have an NOx emission factor of 50lb/10^6scf. Converting to lbs/MMBTU by dividing by 1020 BTU/scf yields, **0.049 lbs/MMBTU.**

The **difference between the two emission factors is 0.009 lbs/MMBTU**.

(1) Power Mechanical Inc. boiler drawing attached on page 8 of Woodbridge's Application for Permission to Install a Boiler or Pressure Vessel (Lethal Service). PDF Attached as "Woodbridge Applicatoin with boiler drawings"

(2) Catherine Williams, Environmental Scientist III "Emissions Reduction Analysis for Proposed Rules R307-315 and R307-316; NOx Emission Limits for Natural Gas-Fired Boilers, Steam Generators, and Process Heaters; 2.0-5.0 MMBtu and greater than 5.0 MMBtu. Attached as **UDAQ Emissions calc.** Refer to Current Emissions section on Page 2.

MARION
ENVIRONMENTAL
INCORPORATED

June 2, 2026

MEI Proposal No. 262001

Mr. Alan Frazier, PE
Engineering Manager
Chattanooga-Hamilton County
Air Pollution Control Bureau
CBL Center II
2034 Hamilton Place Boulevard, Suite 300
Chattanooga, Tennessee 37421

**Re: Proposal Boiler Permitting**
**Woodbridge Formed Plastics**
**3800 Amnicola Highway**
**Chattanooga, Tennessee**

Dear Mr. Frazier:

Marion Environmental Inc. (MEI) is pleased to present the attached Forms E001, E011 and E110 for two proposed boilers to be installed at the Woodbridge Formed Plastics facility located at 3800 Amnicola Highway. Woodbridge will install Boiler #1 in 2026 and Boiler #2 in 2027.

If you have any questions or need additional information, please call MEI at your convenience.

Sincerely,
MARION ENVIRONMENTAL INCORPORATED

James "Jeb" E. Barrett, Jr. PG
Project Manager

RECEIVED
JUN 02 2026
Chattanooga-Hamilton County
Air Pollution Control Bureau

Enc: Forms E001, E011 and E110
Location Map
Site Map

**BASIC APPLICATION FOR EQUIPMENT / AIR POLLUTION PERMIT OR CERTIFICATE OF OPERATION**

**FORM E001 03/2011**

1. Name of Company Woodbridge Chattanooga Formed Plastics LP
   *(If corporation or LLC, name on file with Tennessee Secretary of State Corporate Records Division)*
2. NAICS Code: 326150
3. Company Official to Contact: Rogerio Gonsalves
4. Phone No. 905-896-3626
5. Mailing Address: 51 Lost Mound Drive Unit 51, Chattanooga, TN, 37406
   *Street or P.O. Box* *City* *State* *Zip Code*
6. Physical Location (If different from line 5) 3800 Amnicola Highway, Chattanooga, TN, 37406
   *Street* *City* *State* *Zip Code*
7. Application for:
   ✓ Installation Permit ☐ Initial Certificate of Operation ☐ Renewal Certificate of Operation

   Previous Installation Permit or Certificate of Operation No.: _____
8. Type of equipment for which application is made:

| | | |
|---|---|---|
| ☐ Process Equipment (Form E010 or Form E010A) | ☐ Previously Submitted | ☐ Attached |
| ☑ Fuel Burning Equipment (Form E011) | ☐ Previously Submitted | ☑ Attached |
| ☐ Incineration Equipment (Form E012) | ☐ Previously Submitted | ☐ Attached |
| ☐ Minor Pollution Source (Form E014) | ☐ Previously Submitted | ☐ Attached |

*(Less than 1000 lbs/yr and less than 10 lbs/day total uncontrolled contaminant emissions)*

The following forms are filed with this application:
E011, E110

RECEIVED
JUN 02 2026
Chattanooga-Hamilton County Air Pollution Control Bureau

9. Equipment Name:
   Scotch B896 Boiler #1 and #2
10. If application is for a Certificate of Operation (Initial or Renewal), are there any changes since previous application on the equipment or operation which might:

| | | |
|---|---|---|
| A. Increase, decrease, or alter process materials, fuel, refuse type, etc.? | ☐ Yes | ☑ No |
| B. Increase, decrease, or alter emissions or emission points? | ☐ Yes | ☑ No |

11. Process Weight, lb/hr, (Item 6 on Form E010), Incineration Rate, lb/hr, (Item 3C on Form E012), or Fuel Burning Rate, 1,000 Btu/hr, (Item 7C on Form E011): 25.2 MMBTU/hr × 2 = 50.4 MMBtu/hr

This is to certify that I am familiar with operations concerning this equipment and the information provided on this application is true and complete to the best of my knowledge:

*Mail completed form to:*
CHATTANOOGA-HAMILTON COUNTY
AIR POLLUTION CONTROL BUREAU
2034 Hamilton Place Blvd., Suite 300
Chattanooga, TN 37421

***This form must be completely filled out before it will be processed***

Rogerio Gonsalves
*Name*
Global HSE Director
*Title*
06/02/2026
*Date*

**FUEL BURNING EQUIPMENT APPLICATION**
*A separate form must be filed for each stack or emission point.*

**FORM E011**
**01/2001**

1. Name of Company: Woodbridge Chattanooga Formed Plastics LP
*As shown on Line 1 of Form E001*

2. Equipment Name: Scotch B896 Boiler #1
*As shown on Line 9 of Form E001*

3. Stack Designation:
*If there is more than one stack at this location, provide a written or numeric designation to identify each stack.*

4. Control Equipment Data:

- [X] Emissions Uncontrolled
- [ ] Electrostatic Precipitator (File Form E104)
- [ ] Baghouse (File Form E102)
- [ ] Inertial Separators (File Form E105)
- [ ] Wet Collecting Device (File Form E103)
- [ ] Other (Specify): _____

5. Control Equipment Efficiency:
*Enter the control equipment efficiency for each pollutant emitted by this equipment as determined on the appropriate Form E102, E103, E104, E105, E107, or enter zeros if "A" is checked in Item 4.*

| Pollutant | % Efficiency |
|---|---|
| Particulates | 0 |
| $PM_{10}$ | 0 |
| $SO_x$ | 0 |
| $NO_x$ | 0 |
| CO | 0 |
| VOC | 0 |
| Other: | 0 |

RECEIVED
JUN 02 2025
Chattanooga-Hamilton County
Air Pollution Control Bureau

6. Emissions Estimation: *File Form E110 for each fuel used*

| | | Fuel No.1 | | Fuel No.2 | Fuel No.3 |
|---|---|---|---|---|---|
| Particulate Matter (Form E110, Item 6) | Uncontrolled | 0.189 | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |
| $SO_x$ (Form E110, Item 7) | Uncontrolled | 0.0151 | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |
| $PM_{10}$ | Uncontrolled | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |
| $NO_x$ (Form E110, Item 9E) | Uncontrolled | 29.89 | ppm | ppm | ppm |
| | Actual[1] | | ppm | ppm | ppm |
| | Estimated[2] | | ppm | ppm | ppm |
| Other Air Contaminants (Specify) | Uncontrolled | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |

1. *Submit stack test report with full details.*
2. *Estimate the emissions using the formula below*

$$\text{Estimated Emissions (lbs/hr, ppm)} = \frac{\text{100\%-Control Efficiency (\%)}}{\text{100\%}} \times \text{Uncontrolled Emissions}$$

Company Name: Woodbridge Chattanooga Formed Plastics LP  Equipment Name: Scotch B896

7. Equipment Data:

Manufacturer of Equipment: Power Mechanical, Inc.

Date of Manufacture: 2026  Date of Installation: N/A

| Boiler No. | | Fuel Type | Rated Capacity $10^6$ BTU/hr. Input | Type of Firing | Fuel Consumption | | | Percent Content | | Heating Content of Fuel | (%) Excess Air |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ave. | Max. | Annual | Sulfur | Ash | | |
| B896 | Primary: Normal Operating Fuel(s) | Natural Gas | 25.2 | Forced Draft | | 24,706 CFH | | | | 1,020 BTU/scf | 20 |
| | Standby: Fuel(s) used in emergency only | | | | | | | | | | |
| | Primary: Normal Operating Fuel(s) | | | | | | | | | | |
| | Standby: Fuel(s) used in emergency only | | | | | | | | | | |

a. If more than one boiler per stack, list a separate code number to represent each individual boiler.
b. List all fuels used.
c. Give rated or maximum input capacity, whichever is greater.
d. Specify the type of firing for each fuel used.
e. Indicate consumption of each fuel used in tons/hr, gal/hr, or $ft^3/hr$.
f. Indicate annual consumption of each fuel used in tons/yr, gal/yr, or $ft^3/yr$.
g. The average sulfur and ash content of each fuel must be included – This information may be obtained from the fuel supplier.
h. Indicate the heating content of each fuel in BTU/ton, BTU/gal, or BTU/$ft^3$ – This information may be obtained from the fuel supplier.

| | Space Heating | Process Heating | Other (Describe) |
|---|---|---|---|
| Percent (%)of Load Used | | 100 | |

8. Emissions Impact:

*Those emissions indicated in Item 6 mat at times under normal operating conditions cause (check one or more):*

| | |
|---|---|
| ☐ Odors | ☐ Health Effects |
| ☐ Eye Irritations | ☐ Other nuisances outside of plant property |
| ☐ Property Damage | ☒ No environmental damage |

9. Emission Point Data:

| | | |
|---|---|---|
| Stack Height (emission point) above ground: | 13.33 | Ft |
| Ground Elevation above sea level at stack base: | 661 | Ft |
| Stack Diameter: | 2 | Ft |
| Volume of gas discharged into atmosphere: | | Cfm |
| Gas exit temperature: | | °F |

10. Average Equipment Operating Time:

| | |
|---|---|
| Daily: | 8 Hours |
| Weekly: | 5 Days |
| Yearly: | 52 Weeks |

*This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.* ***This form must be completely filled out before it will be processed.***

*Company Official*

Mail to:
CHATTANOOGA-HAMILTON
COUNTY AIR POLLUTION
CONTROL BUREAU
2034 Hamilton Place Blvd. Suite 300
Chattanooga, TN 37421

*Title*

*Date*

***Do not write below this line***

Engineer Approval

Lbs/hr Allowable particulate emissions

Lbs/$10^6$ BTU allowable $SO_x$ emissions

ppm allowable $NO_x$ emissions

UTM Coordinate of Company: EW NS

This form corresponds to permit number:

Special Notations:

**POLLUTION ESTIMATION FORM**
(Fuel Burning Equipment)

FORM E110
01/2002

1. Name of Company: Woodbridge Chattanooga Formed Plastics LP
*(As shown on Line 1 of Form E001)*

2. Equipment Name: Scotch B896 Boiler #1
*(As shown on Line 10 of Form E001)*

3. Percent excess air used in fuel burning (make allowances for leaks around doors and other openings): 20%

4. Type of Fuel (file Form E110 for each fuel used): Natural Gas

5. Source of Emission Factors: Woodbridge Formed Plastics LP, Power Mechanical, INC. Prelim. Dimensional Drawing (1)
U.S. EPA AP-42 (2)

RECEIVED
JUN 02 2026
Chattanooga-Hamilton County Air Pollution Control Bureau

6. Uncontrolled Particulate Emission Rate:

Particulate Emission Factor: 0.0075 lbs/MMBTU (2)
(lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$)

| 25.2 MMBTU/hr (1) | X | 0.0075 lbs/MMBTU | = | 0.189 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | Particulate Emission Factor | | Uncontrolled Particulate Emission Rate | |

7. Uncontrolled Sulfur Oxide ($SO_x$) Emission Rate:

$SO_x$ Emission Factor: 0.0006 lbs/MMBTU (2)
Lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$

| 25.2 MMBTU/hr (1) | X | 0.0006 lbs/MMBTU | = | 0.0151 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | $SO_x$ Emission Factor | | Uncontrolled $SO_x$ Emission Rate | |

8. Uncontrolled Hydrocarbon (HC) Emission Rate:

HC Emission Factor: 0.0054 lbs/MMBTU (2)
Lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$

| 25.2 MMBTU/hr (1) | X | 0.0054 lbs/MMBTU | = | 0.136 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | HC Emission Factor | | Uncontrolled HC Emission Rate | |

9. Uncontrolled Nitrogen Oxides ($NO_x$) Emission Rate: "low-$NO_x$" burner - factor based on 30 ppm

A. $NO_x$ Emission Factor: 0.04 lbs/MMBTU (1)
Lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$

B.

| 25.2 MMBTU/hr (1) | X | 0.04 lbs/MMBTU | = | 1.008 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | $NO_x$ Emission Factor | | Uncontrolled $NO_x$ Emission Rate | |

10. $NO_x$ Emission Rate in PPM by Volume at STP:

Cubic feet per hour (CFH) of Exhaust Gases at 15% Excess Air:

A. V (See Table A) X 25.2 (1) / Maximum Fuel Consumption Rate $10^6$ BTU/hr = 282240 / Exhaust Rate CFH

B. 1.008 / Uncontrolled $NO_x$ (Item 9B) Lbs/hr ÷ 282240 / CFH of Exhaust Gas (Item 10A) = 3.57E-6 $Lb/ft^3$ $NO_x$

C. PPM = $(8.37 \times 10^6)$ X 3.57E-6 / $Lb/ft^3$ $NO_x$ (Item 10B) = 29.89 / PPM at STP and 15% Excess Air ($NO_x$ calculated as $NO_2$)

| Table A | |
|---|---|
| Fuel | V |
| Bituminous Coal | 11700 |
| Fuel Oil | 11400 |
| Natural Gas | 11200 |
| Wood | 12800 |

$30\ ppm \cdot \frac{11{,}200\ ft^3/MMBtu}{8{,}376{,}000\ ppm \cdot ft^3/lb} = 0.0401434\ lb/MMBtu$

(use 0.040 lb/MMBtu)

*This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.* ***This form must be completely filled out before it will be acceptable.***

Mail to:
**CHATTANOOGA-HAMILTON COUNTY**
**AIR PULLUTION CONTROL BUREAU**
2034 Hamilton Place Blvd. Suite 300
Chattanooga, TN 37421

Rogerio Gonsalves
*Company Official*

Global HSE Director
*Title*

06/02/2026
*Date*

***Do Not Write Below This Line***

_____ Engineer Approval

This form corresponds to permit number: _____

Special Notations: _____

$1{,}000{,}000\ ppm \cdot 22{,}413.969545\ \frac{cm^3}{g\text{-}mol} \cdot \frac{293.15\ K}{273.15\ K} \cdot \frac{1\ g\text{-}mol}{46.00554\ g\ NO_2} \cdot 453.59237\ \frac{g}{lb} \cdot \left(\frac{1\ ft}{30.48\ cm}\right)^3 = 8{,}375{,}643.6\ \frac{ppm \cdot ft^3}{lb}$

$30\ ppm \cdot \frac{11{,}200\ ft^3/MMBtu}{8{,}375{,}643.6\ ppm \cdot ft^3/lb} = 0.0401163\ lb/MMBtu$

(use 0.040 lb/MMBtu) JJG 6/5/26

# FUEL BURNING EQUIPMENT APPLICATION

*A separate form must be filed for each stack or emission point.*

FORM E011
01/2001

1. Name of Company: Woodbridge Chattanooga Formed Plastics LP
   *As shown on Line 1 of Form E001*

2. Equipment Name: Scotch B896 Boiler #2
   *As shown on Line 9 of Form E001*

3. Stack Designation:
   *If there is more than one stack at this location, provide a written or numeric designation to identify each stack.*

4. Control Equipment Data:

- [X] Emissions Uncontrolled
- [ ] Electrostatic Precipitator (File Form E104)
- [ ] Baghouse (File Form E102)
- [ ] Inertial Separators (File Form E105)
- [ ] Wet Collecting Device (File Form E103)
- [ ] Other (Specify): _____

5. Control Equipment Efficiency:
   *Enter the control equipment efficiency for each pollutant emitted by this equipment as determined on the appropriate Form E102, E103, E104, E105, E107, or enter zeros if "A" is checked in Item 4.*

| Pollutant | % Efficiency |
|---|---|
| Particulates | 0 |
| $PM_{10}$ | 0 |
| $SO_x$ | 0 |
| $NO_x$ | 0 |
| CO | 0 |
| VOC | 0 |
| Other: | 0 |

RECEIVED
JUN 02 2026
Chattanooga-Hamilton County
Air Pollution Control Bureau

6. Emissions Estimation:

| | | | *File Form E110 for each fuel used* *Fuel No.1* | *Fuel No.2* | *Fuel No.3* |
|---|---|---|---|---|---|
| Particulate Matter (Form E110, Item 6) | Uncontrolled | 0.189 | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |
| $SO_x$ (Form E110, Item 7) | Uncontrolled | 0.0151 | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |
| $PM_{10}$ | Uncontrolled | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |
| $NO_x$ (Form E110, Item 9E) | Uncontrolled | 29.89 | ppm | ppm | ppm |
| | Actual[1] | | ppm | ppm | ppm |
| | Estimated[2] | | ppm | ppm | ppm |
| Other Air Contaminants (Specify) | Uncontrolled | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Actual[1] | | Lbs/hr | Lbs/hr | Lbs/hr |
| | Estimated[2] | | Lbs/hr | Lbs/hr | Lbs/hr |

1. *Submit stack test report with full details.*
2. *Estimate the emissions using the formula below*

$$\text{Estimated Emissions (lbs/hr, ppm)} = \frac{\text{100\%-Control Efficiency (\%)}}{\text{100\%}} \times \text{Uncontrolled Emissions}$$

Company Name: Woodbridge Chattanooga Formed Plastics LP  Equipment Name: Scotch B896

7. Equipment Data:

Manufacturer of Equipment: Power Mechanical, Inc.

Date of Manufacture: 2026  Date of Installation: N/A

| Boiler No. | | Fuel Type | Rated Capacity $10^6$ BTU/hr. Input | Type of Firing | Fuel Consumption | | | Percent Content | | Heating Content of Fuel | (%) Excess Air |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Ave. | Max. | Annual | Sulfur | Ash | | |
| B896 | Primary: Normal Operating Fuel(s) | Natural Gas | 25.2 | Forced Draft | | 24,706 CFH | | | | 1,020 BTU/scf | 20 |
| | Standby: Fuel(s) used in emergency only | | | | | | | | | | |
| | Primary: Normal Operating Fuel(s) | | | | | | | | | | |
| | Standby: Fuel(s) used in emergency only | | | | | | | | | | |

a. If more than one boiler per stack, list a separate code number to represent each individual boiler.
b. List all fuels used.
c. Give rated or maximum input capacity, whichever is greater.
d. Specify the type of firing for each fuel used.
e. Indicate consumption of each fuel used in tons/hr, gal/hr, or $ft^3/hr$.
f. Indicate annual consumption of each fuel used in tons/yr, gal/yr, or $ft^3/yr$.
g. The average sulfur and ash content of each fuel must be included – This information may be obtained from the fuel supplier.
h. Indicate the heating content of each fuel in BTU/ton, BTU/gal, or BTU/$ft^3$ – This information may be obtained from the fuel supplier.

| | Space Heating | Process Heating | Other (Describe) |
|---|---|---|---|
| Percent (%)of Load Used | | 100 | |

8. Emissions Impact:

*Those emissions indicated in Item 6 mat at times under normal operating conditions cause (check one or more):*

| | |
|---|---|
| ☐ Odors | ☐ Health Effects |
| ☐ Eye Irritations | ☐ Other nuisances outside of plant property |
| ☐ Property Damage | ☒ No environmental damage |

9. Emission Point Data:

| | |
|---|---|
| Stack Height (emission point) above ground: | 13.33 Ft |
| Ground Elevation above sea level at stack base: | 661 Ft |
| Stack Diameter: | 2 Ft |
| Volume of gas discharged into atmosphere: | Cfm |
| Gas exit temperature: | °F |

10. Average Equipment Operating Time:

| | |
|---|---|
| Daily: | 8 Hours |
| Weekly: | 5 Days |
| Yearly: | 52 Weeks |

*This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.* ***This form must be completely filled out before it will be processed.***

*Company Official*

Mail to:
CHATTANOOGA-HAMILTON
COUNTY AIR POLLUTION
CONTROL BUREAU
2034 Hamilton Place Blvd. Suite 300
Chattanooga, TN 37421

*Title*

*Date*

***Do not write below this line***

Engineer Approval

Lbs/hr Allowable particulate emissions

Lbs/$10^6$ BTU allowable $SO_x$ emissions

ppm allowable $NO_x$ emissions

UTM Coordinate of Company: EW NS

This form corresponds to permit number:

Special Notations:

**POLLUTION ESTIMATION FORM**
(Fuel Burning Equipment)

FORM E110
01/2002

1. Name of Company: Woodbridge Chattanooga Formed Plastics LP
*(As shown on Line 1 of Form E001)*

2. Equipment Name: Scotch B896 Boiler #2
*(As shown on Line 10 of Form E001)*

3. Percent excess air used in fuel burning (make allowances for leaks around doors and other openings): 20%

4. Type of Fuel (file Form E110 for each fuel used): Natural Gas

5. Source of Emission Factors: Woodbridge Formed Plastics LP, Power Mechanical, INC. Prelim. Dimensional Drawing (1)
U.S. EPA AP-42 (2)

6. Uncontrolled Particulate Emission Rate:

RECEIVED
JUN 0 2 2026
Chattanooga-Hamilton County Air Pollution Control Bureau

Particulate Emission Factor: 0.0075 lbs/MMBTU (2)
(lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$)

| 25.2 MMBTU/hr (1) | X | 0.0075 lbs/MMBTU | = | 0.189 Lbs/hr |
|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | Particulate Emission Factor | | Uncontrolled Particulate Emission Rate |

7. Uncontrolled Sulfur Oxide ($SO_x$) Emission Rate:

$SO_x$ Emission Factor: 0.0006 lbs/MMBTU (2)
Lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$

| 25.2 MMBTU/hr (1) | X | 0.0006 lbs/MMBTU | = | 0.0151 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | $SO_x$ Emission Factor | | Uncontrolled $SO_x$ Emission Rate | |

8. Uncontrolled Hydrocarbon (HC) Emission Rate:

HC Emission Factor: 0.0054 lbs/MMBTU (2)
Lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$

| 25.2 MMBTU/hr (1) | X | 0.0054 lbs/MMBTU | = | 0.136 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | HC Emission Factor | | Uncontrolled HC Emission Rate | |

9. Uncontrolled Nitrogen Oxides ($NO_x$) Emission Rate: "low-NOx" burner - factor based on 30 ppm

A. $NO_x$ Emission Factor: 0.04 lbs/MMBTU (1)
Lbs/ton; lbs/$10^3$ gal; lbs/$10^6$ $ft^3$

B.

| 25.2 MMBTU/hr (1) | X | 0.04 lbs/MMBTU | = | 1.008 | Lbs/hr |
|---|---|---|---|---|---|
| Maximum Fuel Consumption Rate (tons/hr; gal/hr; $ft^3$/hr) | | $NO_x$ Emission Factor | | Uncontrolled $NO_x$ Emission Rate | |

10. $NO_x$ Emission Rate in PPM by Volume at STP:

Cubic feet per hour (CFH) of Exhaust Gases at 15% Excess Air:

A. V (See Table A) X 25.2 (1) (Maximum Fuel Consumption Rate $10^6$ BTU/hr) = 282240 (Exhaust Rate) CFH

B. 1.008 (Uncontrolled $NO_x$ (Item 9B)) Lbs/hr ÷ 282240 (CFH of Exhaust Gas (Item 10A)) = 3.57E-6 $Lb/ft^3$ $NO_x$

C. PPM = $(8.37 \times 10^6)$ X 3.57E-6 ($Lb/ft^3$ $NO_x$ (Item 10B)) = 29.89 (PPM at STP and 15% Excess Air ($NO_x$ calculated as $NO_2$))

| Table A | |
|---|---|
| Fuel | V |
| Bituminous Coal | 11700 |
| Fuel Oil | 11400 |
| Natural Gas | 11200 |
| Wood | 12800 |

*This is to certify that I am familiar with the operations concerning this equipment and that the information provided on this application is true and complete to the best of my knowledge.* ***This form must be completely filled out before it will be acceptable.***

Mail to:
**CHATTANOOGA-HAMILTON COUNTY**
**AIR PULLUTION CONTROL BUREAU**
2034 Hamilton Place Blvd. Suite 300
Chattanooga, TN 37421

Rogerio Gonsalves
*Company Official*

Global HSE Director
*Title*

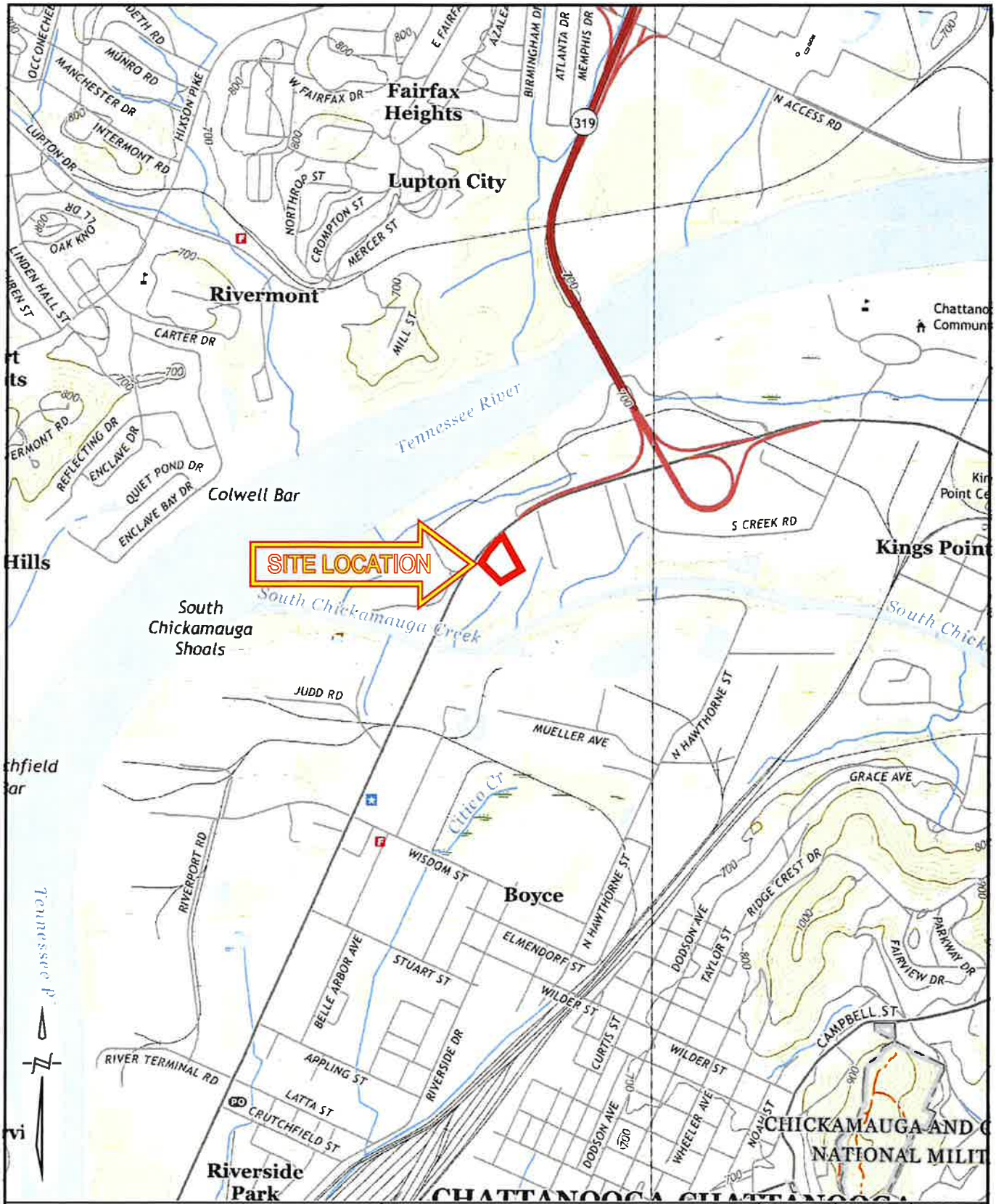
06/02/2026
*Date*

***Do Not Write Below This Line***

_____ Engineer Approval

This form corresponds to permit number: _____

Special Notations: _____




MARION ENVIRONMENTAL, INC.
115 PARMENAS LANE
CHATTANOOGA, TENNESSEE 37405
Phone: (423) 499-4919 Fax: (423) 892-5122
Email: info@marionenvironmental.com
Web: www.marionenvironmental.com

**LOCATION MAP**
3800 AMNICOLA HIGHWAY PROPERTY
3800 AMNICOLA HIGHWAY
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE 37406
PARCEL NUMBER 127D-B-001.05
PREPARED FOR: WOODBRIDGE FOAM

| PROJECT #: | PRJ. MGR: | MAP BY: |
|---|---|---|
| 262001 | JEB | TN PROP |
| SCALE: NTS | PRINT DATE: 06/02/26 | DWG. BY: MKH |
| APPROVED: | MAP DATE: 2026 | FIGURE #: A-1 |


MARION ENVIRONMENTAL, INC.
115 PARMENAS LANE
CHATTANOOGA, TENNESSEE 37405
Phone: (423) 499-4919 Fax: (423) 892-5122
Email: info@marionenvironmental.com
Web: www.marionenvironmental.com

**SITE MAP**
3800 AMNICOLA HIGHWAY PROPERTY
3800 AMNICOLA HIGHWAY
CHATTANOOGA, HAMILTON COUNTY, TENNESSEE
37406
PARCEL NUMBER 127D-B-001.05
PREPARED FOR: WOODBRIDGE FOAM

| PROJECT #: | PRJ. MGR: | MAP BY: |
|---|---|---|
| 262001 | JEB | HCGIS |
| SCALE: NTS | PRINT DATE: 06/02/26 | DWG. BY: |
| APPROVED: | MAP DATE: 2026 | FIGURE #: A-2 |