NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: TBD, 2022

Region: Mooresville Regional Office
County: Cabarrus
NC Facility ID: 1300027
Inspector's Name: Melinda Wolanin
Date of Last Inspection: 11/30/2020
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Mauser USA, LLC - Harrisburg

Facility Address:
Mauser USA, LLC - Harrisburg
12180 University City Boulevard
Harrisburg, NC 28075

SIC: 3412 / Metal Barrels, Drums & Pails
NAICS: 332439 / Other Metal Container Manufacturing

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 02D .0515, .0516, .0521, .0951, .0958, .1806, 02Q .0317
NSPS: NA
NESHAP: 40 CFR 63 Subpart MMMM
PSD: NA
PSD Avoidance: 15A NCAC 02Q .0317 for 15A NCAC 02D .0530
NC Toxics: NA
112(r): NA
Other: NA

Contact Data

Facility Contact	Authorized Contact	Technical Contact
David Henderson Materials Manager (704) 455-2111 12180 University City Blvd Harrisburg, NC 28075	Andrew Myers Plant Manager (704) 455-2111 12180 University City Boulevard Harrisburg, NC 28075	David Henderson Materials Manager (704) 455-2111 12180 University City Blvd Harrisburg, NC 28075

Application Data

Application Number: 1300027.21A
Date Received: 09/01/2021
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 05577/T17
Existing Permit Issue Date: 10/31/2017
Existing Permit Expiration Date: 09/30/2022

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2020	0.0100	1.17	70.89	0.9800	0.1600	15.41	12.28 [Glycol Ethers, Unlisted - Spec]
2019	0.0300	4.02	74.27	3.39	0.1500	14.85	10.81 [Glycol Ethers, Unlisted - Spec]
2018	0.0300	3.33	83.52	2.79	0.1700	16.50	12.42 [Glycol Ethers, Unlisted - Spec]
2017	0.0100	0.9700	80.76	0.8100	0.1726	24.11	19.32 [Glycol Ethers, Unlisted - Spec]
2016	0.0100	1.28	87.03	0.2100	0.1037	17.44	11.65 [Glycol Ethers, Unlisted - Spec]

Review Engineer: Richard Simpson

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 05577/T18
Permit Issue Date: February TBD, 2022
Permit Expiration Date: January 31, 2027

I. Introduction:

Mauser USA, LLC – Harrisburg (referred to Mauser throughout this document) holds Title V Permit No. 05577T17 with an expiration date of September 30, 2022 for a drum manufacturing plant in Harrisburg, Cabarrus County, North Carolina.

II. Description of Facility:

This facility manufactures and paints 55-gallon steel drums. The facility is currently operating 5am – 5pm, Monday through Thursday and Friday as needed. The facility is currently producing around 85,000 drums per month. About 55 people now work in the manufacturing area. Over time, the materials used in the operations at the facility are changed due to formulation changes by the product manufacturers, as well as changes in client specifications and Mauser's product portfolio. Based on updates in material composition, the facility has replaced the solvent used at the facility. Going forward, acetone (an exempt VOC) will completely replace the use of the polyblend solvent historically used at the facility.

III. Purpose of Application

A. Permit application No. 1300027.21A was received on September 1, 2021 and deemed complete for a renewal of an existing Title V permit pursuant to 15A NCAC 02Q .0513 and a March 14, 2019 502(b)(10) change pursuant to 15A NCAC 02Q .0523.. The renewal application was received at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied. This permit action will address the following sources and control devices associated with the application:

- The lids/parts spray painting operation emission source (ID No. ES-01) was replaced under a 502(b)(10) change with a unit of the same capacity,
- Remove insignificant activity steel sheet grinder (ID No. IG-1),
- Update emission calculations using different materials.

IV. History/Background/Application Chronology

October 31, 2017 – Permit 05577T17 was issued.

March 14, 2019 – The facility submitted a 502(b)(10) request.

November 30, 2020 – The facility was inspected by Melinda Wolanin of the Mooresville Regional Office.

September 1, 2021 - Permit application **1300027.21A** was received for a Title V renewal and an acknowledgement letter was sent.

December 15 – December 22, 2021 – The facility, MRO, and DAQ permitting staff were requested by the permit engineer, Richard Simpson, to comment on the draft permit and review. Additional comments were received and included in the permit.

January ##, 2021– TVEE changes were approved by Jenny Sheppard TVEE Coordinator.

January##, 2022 – DRAFT permit sent to public notice and EPA for review prior to issuance. The 30-day public comment period ended **February ##, 2022** with the receipt of no comments. The 45-day EPA review period ended **February ##, 2022** with the receipt of no comments.

February ##, 2022 – Permit **05577T18** was issued.

V. Permit Modifications/Changes and TVEE Discussion

The following changes were made to Mauser USA, LLC - Harrisburg, Harrisburg, NC Air Permit No. 05577T18:

Cover and throughout	Throughout	Updated all tables, dates, and permit revision numbers. Permit was updated with the latest Permit Shell 7.0.
3	NA	The list of acronyms were moved from the last page to page 3 of the permit.
7	Section 2.1 B.	Removed redundant regulations since they are referenced in Section 2.2 A.
16	Section 2.2 A.5.g.	Removed outdated initial certification requirements.
20	Section 2.3	Moved the Insignificant Activities to Section 2.3
19	Insignificant Activities	Remove insignificant activity steel sheet grinder (ID No. IG-1).
19	Insignificant Activities	Combined all eleven (11) direct natural gas-fired space heaters with a maximum combined capacity of 1.5 million Btu per hour heat capacity. (ID No. ISH1)
19	Section 2.4	Moved the Permit Shield for Nonapplicable Sources from Section 2.3 to Section 2.4.
20-30	Section 3	The General Conditions in Section 3 of the permit were updated to the latest version.

There were changes made to the Title V Equipment Editor (TVEE) under this permit application.

VI. Potential Emission Estimates

Mauser is a mainly a source of VOC emissions and has a facility-wide limitation of less than 250 tons per year and subject to 15A NCAC 02Q .0317 Avoidance conditions for 15A NCAC 02D .0530: Prevention of Significant Deterioration. The majority of VOC emits when spray painting drums. Detailed emission calculations are provided in Appendix 1.

Emission Scenario	CO (tpy)	NO_x (tpy)	VOC (tpy)	PM (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	SO_2 (tpy)	Total HAPs (tpy)
Potential Emission	4.04	4.81	173.91	1.30	1.30	1.30	0.03	48.78

VII. Regulatory Review

Mauser is subject to the following regulations:

a. 15A NCAC 02D .0515, "Particulates from Miscellaneous Industrial Processes"
b. 15A NCAC 02D .0516, "Sulfur Dioxide Emission from Combustion Sources"
c. 15A NCAC 02D .0521, "Control of Visible Emissions"
d. 15A NCAC 02D .0951, "Miscellaneous Volatile Organic Compound Emissions"

e. 15A NCAC 02D .0958, "Work Practices for Sources of Volatile Organic Compounds"
f. 15A NCAC 02D .1806, "Control and Prohibition of Odorous Emissions"
g. 15A NCAC 02D .1111, "Maximum Achievable Control Technology (40 CFR 63, Subpart MMMM)"
h. 15A NCAC 02Q .0317, "Avoidance Conditions" (for 15A NCAC 2D .0530, Prevention of Significant Deterioration)

There are no changes to any of the regulations associated with this permit renewal. Detailed requirements are provided below for the regulations associated with the emission sources. For a discussion of NSPS, MACT, CAM, and PSD requirements, see Section X.

1. 15 NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes**:** This rule applies to the steel drum spray painting operations (ID Nos. ES-01, ES-02, and ES-05) and limits the allowable PM emission from these sources to:

   $E = 4.10(P)^{0.67} = 4.10(0.3)^{0.67} = 1.83$ lb PM/hr *for process rates ≤ 30 ton/hr*

   where: P = the process weight rate (ton/hr)
   E = allowable emissions (lb PM/hr)

   The permit requires weekly and annual inspections of the spray booths' dry filters to ensure they provide effective control. Continued compliance is anticipated.

2. 15 NCAC 02D .0516, Sulfur Dioxide Emission from Combustion Sources: This rule limits sulfur dioxide emissions to 2.3 pounds per million BTU heat input. To ensure compliance from the drying ovens (ID Nos. ES-01, ES-02, and ES-05), Mauser performs monthly visible emission observations, maintains records, and submits semiannual summary reports of visible emission observations to NC DAQ. Continued compliance is anticipated.

3. 15 NCAC 02D .0521, Control of Visible Emissions: This rule limits visible emissions to 20% opacity (except a six-minute averaging period can exceed 20% once per hour and four times per 24-hour period, provided visible emissions do not exceed 87% opacity). To ensure compliance, Mauser performs monthly visible emission observations, maintains records, and submits semiannual summary reports of visible emission observations to NC DAQ. Continued compliance is anticipated.

4. 15 NCAC 02D .0951, Miscellaneous Volatile Organic Compound Emissions: This rule applies to all facilities that use volatile organic compounds as solvents, carriers, material processing media, or industrial chemical reactants, or in other similar uses, or that mix, blend, or manufacture volatile organic compounds for which there is no other applicable emissions control rule in this Section except Rule .0958 of this Section. Per 15A NCAC 02D .0951(c)(1), the Permittee has installed and operates reasonable available control technology (i.e., defined RACT) as being the National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products (40 CFR 63, Subpart MMMM), meeting the requirements of RACT. Continued compliance is anticipated.

5. 15 NCAC 02D .0958, Work Practices for Sources of Volatile Organic Compounds: This rule applies to all sources that use volatile organic compounds (VOC) as solvents, carriers, material processing media, or industrial chemical reactants, or in similar uses that mix, blend, or manufacture VOCs, or emit VOCs as a product of chemical reactions. The facility shall:
   i. Store all material, including waste material, containing VOCs in tanks or in containers

covered with a tightly fitting lid that is free of cracks, holes, or other defects, when not in use,
ii. Clean up spills of VOCs as soon as possible following proper safety procedures,
iii. Store wipe rags containing VOCs in closed containers,
iv. Not clean sponges, fabric, wood, paper products, and other absorbent materials with VOCs,
v. Transfer solvents containing VOCs used to clean supply lines and other coating equipment into closable containers and close such containers immediately after each use, or transfer such solvents to closed tanks, or to a treatment facility regulated under section 402 of the Clean Water Act,
vi. Clean mixing, blending, and manufacturing vats and containers containing VOCs by adding cleaning solvent and close the vat or container before agitating the cleaning solvent. The spent cleaning solvent shall then be transferred into a closed container, a closed tank or a treatment facility regulated under section 402 of the Clean Water Act.

When cleaning parts with a solvent containing a VOC, the facility shall:

i Flush parts in the freeboard area,
ii. Take precautions to reduce the pooling of solvent on and in the parts,
iii. Tilt or rotate parts to drain solvent and allow a minimum of 15 seconds for drying or until all dripping has stopped, whichever is longer,
iv. Not fill cleaning machines above the fill line,
v. Not agitate solvent to the point of causing splashing.

To ensure compliance, the facility shall, at a minimum, perform a visual inspection once per month of all operations and processes utilizing VOCs. The inspections shall be conducted during normal operations. The results of the inspections shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following the date and time of each inspection; and the results of each inspection noting whether or not noncompliant conditions were observed. Continued compliance is anticipated.

6. 15 NCAC 02D .1806, Control and Prohibition of Odorous Emissions: The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. Continued compliance is anticipated.

VIII. NSPS, NESHAPS/MACT/GACT, PSD, 112(r), CAM

NSPS – The Permittee is not subject to 15A NCAC 02D .0524 "New Source Performance Standards (NSPS)" as promulgated in 40 CFR Part 60.

NESHAPS/MACT/GACT – The following sources (ID Nos. ES-01, ES-02, ES-05, SILK, and SEAM) are currently listed as being subject to the National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products. Compliance with this standard was required on January 2, 2007 for all existing sources. The current permit includes the specific permit language applicable to these sources.

For the sources applicable sources, the Permittee shall limit organic HAP emissions to the atmosphere as follows:

i. For each existing general use coating affected source, limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAP per liter (gal) coating solids used during each 12-month compliance period;

ii. For each existing high performance coating affected source, limit organic HAP emissions to no more than 3.3 kg (27.5 lb) organic HAP per liter (gal) coating solids used during each 12-month compliance period;
iii. For each existing magnet wire coating affected source, limit organic HAP emissions to no more than 0.12 kg (1.0 lb) organic HAP per liter (gal) coating solids used during each 12-month compliance period;
iv. For each existing rubber-to-metal coating affected source, limit organic HAP emissions to no more than 4.5 kg (37.7 lb) organic HAP per liter (gal) coating solids used during each 12-month compliance period; and
v. For each existing extreme performance fluoropolymer coating affected source, limit organic HAP emissions to no more than 1.5 kg (12.4 lbs) organic HAP per liter (gal) coating solids used during each 12-month compliance period.

If the sources meet the applicability criteria of more than one of the subcategory emission limits above, the Permittee may comply separately with each subcategory emission limit or comply using one of the following alternatives.

i. If the general use or magnet wire surface coating operations subject to only one of the emission limits specified in Section 2.2 A.5.b.i or iii above account for 90 percent or more of the surface coating activity at the facility (i.e., it is the predominant activity at the facility), then compliance with that one emission limitation for all surface coating operations constitutes compliance with the other applicable emission limits. The Permittee shall use liters (gal) of solids used as a measure of relative surface coating activity over a representative period of operation. The Permittee may estimate the relative volume of coating solids used from parameters other than coating consumption and volume solids content (e.g., design specifications for the parts or products coated and the number of items produced). The determination of predominant activity must accurately reflect current and projected coating operations and must be verifiable through appropriate documentation. The Permittee may use data for any reasonable time period of at least 1 year in determining the relative amount of coating activity, as long as they represent the way the source will continue to operate in the future and are approved by DAQ. The Permittee shall determine the predominant activity at the facility annually and submit the results of that determination in the next semi-annual compliance report required by Section 2.2 A.5.i below; or
ii. The Permittee may calculate and comply with a facility-specific emission limit as described below. In calculating a facility-specific emission limit, the Permittee shall include coating activities that meet the applicability criteria of the other subcategories and constitute more than 1 percent of total coating activities.
    A. The Permittee is required to calculate the facility-specific emission limit for the facility when submitting the notification of compliance status required in Section 2.2 A.5.g below, and on a monthly basis afterward using the coating data for the relevant 12-month compliance period.
    B. The Permittee shall use the following equation to calculate the facility-specific emission limit for the surface coating operations for each 12-month compliance period.

The Permittee shall collect and keep records of the data and information per 40 CFR 63.3930. Failure to collect and keep these records is a deviation from the applicable standard. The Permittee shall submit a summary report of the monitoring and recordkeeping activities as required in Section 2.2 A.5.h. This permit renewal does not affect this status. Continued compliance is anticipated.

PSD – The facility is currently subject to a permit condition that limits volatile organic compound emissions facility-wide to less than 250 tons per year. The Permittee is required to complete monthly VOC emissions calculations by multiplying total amount of each type of VOC-containing material consumed during the month by the VOC content of the material. Calculations are to be recorded monthly in a logbook. The current permit also requires semi-annual reporting of the monitoring and

recordkeeping activities. This permit renewal does not affect this status. Continued compliance is anticipated.

112(r) – The facility is not currently subject to the 112(r) "Prevention of Accidental Releases" requirements because it does not store any chemicals in amounts greater than the applicability threshold. This permit renewal does not affect this status. Continued compliance is anticipated.

CAM – 40 CFR 64 requires that a compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. CAM is not applicable for this facility. This permit renewal does not affect this status. Continued compliance is anticipated.

IX. Stipulation Review

The facility was last inspected by Melinda Wolanin of the Mooresville Regional Office on November 30, 2020. At the time of the inspection, the facility appeared to be in compliance with all applicable air quality regulations.

X. Compliance Status

The facility received a Notice of Odor Investigation on March 15, 2019 in response to an odor investigation stemming from several complaints.

The facility was sent an odor information letter on May 15, 2018; however, it was not sent certified and the facility stated they did not receive the letter.

The facility received an NOD on September 1, 2017 for failure to submit name change/ownership change information.

XI. Public Notice/EPA and Affected State(s) Review

A thirty-day public notice period and a forty-five-day EPA review period is required for this step 2 significant modification of the Title V permit. A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to the EPA. Also pursuant to 02Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above.

EPA's 45 Day Review period
Michael Sparks (U.S. EPA, Region IV) was provided a PROPOSED permit for review on January ##, 2022. EPA 45-day review period ended on February ##, 2022. No comments were offered or received.

Public Notice
The 30-day public notice of the PROPOSED permit was posted on the NCDAQ website on January ##, 2022. No comments were offered or received.

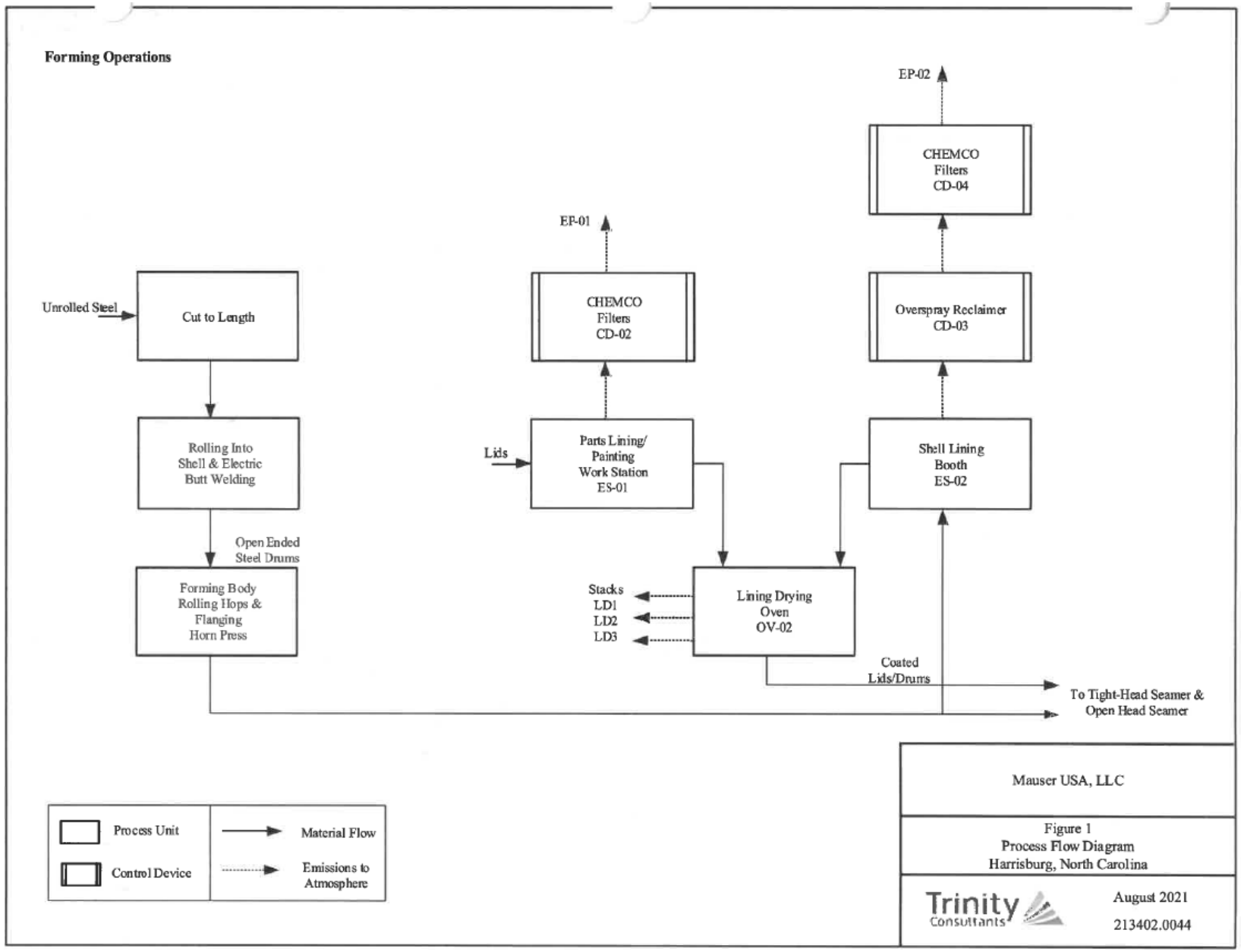
XII. Other Regulatory Considerations

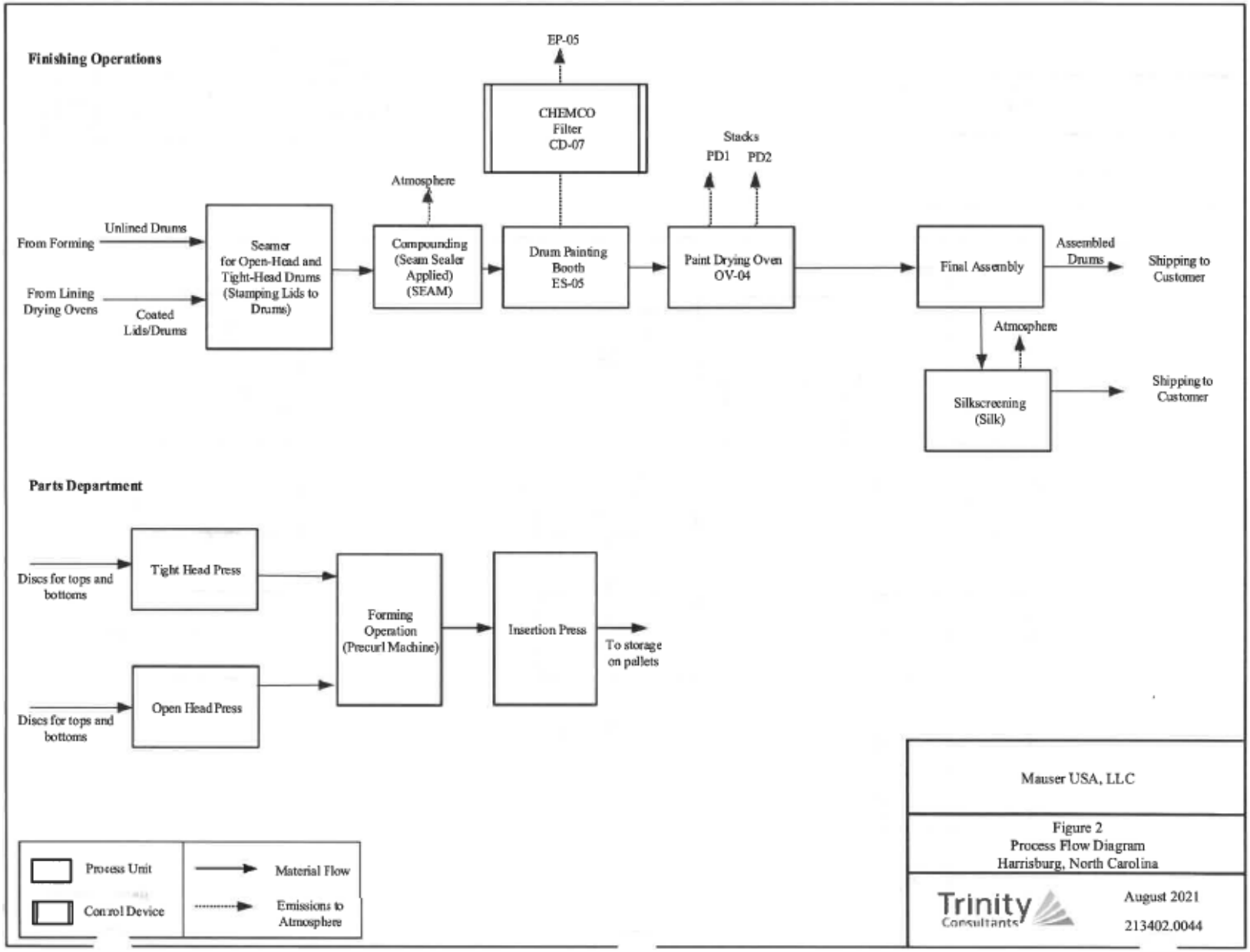
- An application fee is not required for this renewal application.
- The appropriate number of application copies was received by the DAQ.
- A Professional Engineer's Seal is not required for this application.
- A zoning consistency determination is not required for this renewal application.
- The application was signed by Mr. Andrew Myers, Plant manager, on August 26, 2021.
- Cabarrus County has triggered increment tracking under PSD for SO_2, and PM-10. However, this permit renewal does not consume or expand increments for any pollutants.

XIII. Recommendations

The application for Mauser USA, LLC – Harrisburg, in Harrisburg, Cabarrus County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 05577T18.

Appendix 1


Forming Operations
EP-02
CHEMCO
Filters
CD-04
EP-01
CHEMCO
Filters
CD-02
Overspray Reclaimer
CD-03
Unrolled Steel
Cut to Length
Rolling Into
Shell & Electric
Butt Welding
Lids
Parts Lining/
Painting
Work Station
ES-01
Shell Lining
Booth
ES-02
Open Ended
Steel Drums
Forming Body
Rolling Hops &
Flanging
Horn Press
Stacks
LD1
LD2
LD3
Lining Drying
Oven
OV-02
Coated
Lids/Drums
To Tight-Head Seamer &
Open Head Seamer
Process Unit
Control Device
Material Flow
Emissions to
Atmosphere
Mauser USA, LLC
Figure 1
Process Flow Diagram
Harrisburg, North Carolina
Trinity Consultants
August 2021
213402.0044


Finishing Operations
EP-05
CHEMCO
Filter
CD-07
Stacks
PD1
PD2
Atmosphere
Unlined Drums
From Forming
From Lining
Drying Ovens
Coated
Lids/Drums
Seamer
for Open-Head and
Tight-Head Drums
(Stamping Lids to
Drums)
Compounding
(Seam Sealer
Applied)
(SEAM)
Drum Painting
Booth
ES-05
Paint Drying Oven
OV-04
Final Assembly
Assembled
Drums
Shipping to
Customer
Atmosphere
Silkscreening
(Silk)
Shipping to
Customer
Parts Department
Discs for tops and
bottoms
Tight Head Press
Forming
Operation
(Precurl Machine)
Insertion Press
To storage
on pallets
Discs for tops and
bottoms
Open Head Press
Process Unit
Control Device
Material Flow
Emissions to
Atmosphere
Mauser USA, LLC
Figure 2
Process Flow Diagram
Harrisburg, North Carolina
Trinity
Consultants
August 2021
213402.0044

Facility Emissions Summary

	Pollutant	(lb/hr)	(lb/yr)	(tpy)
Total Criteria	PM	0.68	2,606	1.30
	PM_{10}	0.68	2,606	1.30
	$PM_{2.5}$	0.68	2,597	1.30
	SO_2	6.59E-03	58	0.03
	NO_X	1.10	9,619	4.81
	VOC[a]	156.63	347,816	173.91
	CO	0.92	8,080	4.04
	CO_2e	1,316.91	11,536,161	5,768.08
Total HAP/TAP	Acetaldehyde	1.67E-07	1.46E-03	7.30E-07
	Acrolein	1.98E-07	1.73E-03	8.65E-07
	Ammonia	0.04	307.80	0.15
	Arsenic	2.20E-06	1.92E-02	9.62E-06
	Benzene	2.31E-05	0.20	1.01E-04
	Benzo(a)pyrene	1.32E-08	1.15E-04	5.82E-08
	Beryllium	1.32E-07	1.15E-03	5.78E-07
	2-Butoxyethanol	5.79	30,258.42	15.13
	Cadmium	1.21E-05	0.11	5.29E-05
	Chromium (VI)	1.54E-05	0.13	6.73E-05
	Cobalt	9.22E-07	8.08E-03	4.04E-06
	Cresols	3.15	7,293.00	3.65
	Ethyl Benzene	0.38	807.68	0.40
	Formaldehyde	1.03	2,412.36	1.21
	Glycol Ethers	3.08	16,111.65	8.06
	Lead	5.49E-06	0.05	2.40E-05
	Manganese	4.17E-06	0.04	1.83E-05
	Mercury	2.85E-06	0.03	1.25E-05
	Methanol	2.46	5,697.29	2.85
	Methyl Ethyl Ketone	0.74	2,229.28	1.11
	Napthalene	6.70E-06	0.06	2.93E-05
	n-Hexane	0.02	173.14	0.09
	Nickel	2.31E-05	0.20	1.01E-04
	Phenol	7.29	16,870.39	8.44
	Selenium	2.64E-07	2.31E-03	1.15E-06
	Toluene	0.48	2,503.17	1.25
	Triethylamine	0.00	0.00	0.00
	Xylene	7.02	15,429.73	7.71
	Total Potential Combined HAP	30.70	97,557.67	48.78

[a] Current permit condition 2.2.A.1.a limits facility-wide VOC emissions to 250 tons per year. Mauser will continue to comply with this limit with the renewed Title V permit.

Facility Production Parameter Summary		
Facility		
Maximum Potential Production Rate[a]	700	drums/hr
ES-01		
Maximum Parts Lining Rate[b]	1,000	parts/hr
ES-02		
Maximum Shell Lining Rate[a]	700	shells/hr
Lining Constants		
Drums Lined per gallon of Lining[c]	25.59	drum/gal
Gallons of Lining per Drum[c]	0.039079	gal/drum
Surface Coating required per Part[c]	508.20	sq.in
Parts per Drum[c]	2.0	parts
Total Parts Lining Coverage[c]	1,016.40	sq.in
Surface Coating required per Shell[c]	2,556.00	sq.in

[a] Unchanged from previous renewal due to no process additions

[b] Lining rate remains the same as previous renewal application

[c] Same as previous renewal application.

Linings Constituent Information

Coating Product	Product Number	Density (lb/gal)[3]	% Solids Weight[3]	% Solids by Volume	Solids (lb/gal)	lbs HAPS/ gal[3]	lbs HAP/ solid gallon[3]	VOC Content (lb/gal)[3]	Potential HAP/TAP Emissions											
									Phenol 108 95-8 (wt. %)[3]	Phenol 108 95-8 (lb/gal)	Formal-dehyde 50-00-0 (wt. %)[3]	Formal-dehyde 50-00-0 (lb/gal)	Xylene 1330-20-7 (wt. %)[3]	Xylene 1330-20-7 (lb/gal)	Ethyl Benzene 100-41-4 (wt. %)[3]	Ethyl Benzene 100-41-4 (lb/gal)	Methanol 67-56-1 (wt. %)[3]	Methanol 67-56-1 (lb/gal)	Cresols 1319-77-3 (wt %)	Cresols 1319-77-3 (lb/gal)
RESCO 150 Clear Size Coat	6-15-9	7.60	24.60	19.00	1.87	0.00	0.00	2.65		0.00		0.00		0.00		0.00		0.00		0.00
RESCO 908 Clear	6-98-17-D	8.68	40.90	31.70	3.55	0.67	2.11	4.30	2.70	0.23	0.42	0.04	1.11	0.27	0.14	0.01	1.17	0.10	0.13	0.01
RESCO 908 Light Brown[4]	6-98-B06-G	9.22	44.60	36.00	4.11	0.57	1.90	3.36	2.85	0.26	0.42	0.04	2.77	0.26	0.15	0.01		0.00		0.00
RESCO 908 Olive Green[4]	6-98-G20-P	8.95	42.80	30.40	3.83	0.62	2.04	3.81	3.36	0.30	0.47	0.04	2.84	0.25	0.15	0.01		0.00	0.12	0.01
HENTZEN BUFF STERILKOTE 46	1087908	9.43	44.00	28.00	4.15	0.00	0.00	2.50		0.00		0.00		0.00		0.00		0.00		0.00
RESCO 508-L Dark Red[4]	6-56-407-D	9.29	42.30	31.2	3.93	0.12	0.38	4.12	0.50	0.05		0.00	0.77	0.07		0.00		0.00		0.00

[3] Obtained from MSDS

[3] Taken from MSDS or calculated as the sum of the individual HAP components, whichever value is greater

[3] Taken directly from MSDS or calculated using % solids by volume and lb HAPs/gallon

[4] Product constituent information updated in 2011 renewal based on most recent SDSs for the material.

Paints Constituent Information

								Potential HAP/TAP Emissions[d]									
								Toluene		Diethylene glycol monobutyl ether[e]		2-Butoxyethanol		Diethylene glycol monomethyl ether[e]		Formaldehyde	
								108-88-3		112-34-5		111-76-2		111-77-3		50-00-0	
Mauser Paint No.	Paint Product[a]	Product Number	Density (lb/gal)[b]	% Solids Weight[c]	VOC Content (lb/gal)[b]	Solids Content (lb/gal)	Volatile by Weight (%)[c]	wt%	lb/gal	wt%	lb/gal	wt%	lb/gal	wt%	lb/gal	wt%	lb/gal
50040060	Black Drum	42B107	8.382	87.48	1.037	7.25	12.52			3.00	0.25						
50040046	201 Gray White	42W105	10.211	86.02	1.428	8.78	13.98			3.00	0.31						
50040068	Strong Green	42D105	8.426	84.32	1.321	7.11	15.68	0.55	0.05	3.00	0.25						
50040048	Uniroyal Blue	42B114	8.542	86.70	1.136	7.41	13.30			3.00	0.26						
50040069	Lake Blue	42B116	8.610	83.93	1.384	7.23	16.07	0.55	0.05	3.00	0.26						
50045053	Lite Blue 601	42E117	8.701	84.09	1.384	7.32	15.91	0.55	0.05	3.00	0.26						
50040066	Cook Grey	42G107	8.885	85.83	1.259	7.63	14.17			3.00	0.27						
50040062	Huis Red	42R112	8.652	85.06	1.293	7.36	14.94			3.00	0.26						
50045052	Brilliant Blue	42E118	8.497	83.51	1.401	7.10	16.49	0.55	0.05	3.00	0.25						
50040070	Sky Blue	42E115	9.243	86.11	1.376	7.87	14.89			3.00	0.28						
50040063	RAL 3011 Brown	42R113	8.701	84.39	1.350	7.34	15.61			3.00	0.26						
50040071	912 Aluminum	42A100	8.413	83.68	1.373	7.04	16.32	0.55	0.05	3.00	0.25						
50040064	Jon Yellow	42Y102	8.966	84.33	1.485	7.56	15.67			3.00	0.27						
50040059	Clear	42C102	8.377	84.29	1.316	7.06	15.71	0.55	0.05	3.00	0.25						
50040052	104 RED	42R110	8.661	84.04	1.382	7.28	15.96	0.08	0.01	1.10	0.10	6.60	0.58	0.02	0.002	0.01	0.001
50040073	Tomato Red	42R111	8.664	84.95	1.304	7.36	15.05			3.00	0.26						
50040077	Emerald Green RAL 6001	42D112	8.497	83.65	1.389	7.11	16.35	0.55	0.05	3.00	0.25						
50040053	Cardolite Green	42D104	8.631	83.36	1.436	7.20	16.64	0.55	0.05	3.00	0.26						
50040072	Light Gray RAL 7035	42G108	9.313	86.65	1.243	8.07	13.35			3.00	0.28						
50040067	Reliance Beige	42L102	9.686	86.81	1.270	8.41	13.19			3.00	0.29						
50047036	3M Brown	42L105	8.386	83.41	1.391	7.00	16.59	0.55	0.05	3.00	0.25						
50040074	PMS 349C Green	42D107	8.453	84.41	1.318	7.14	15.59	0.55	0.05	3.00	0.25						
50044040	485 Shell Red	42R116	8.409	83.65	1.380	7.10	16.35			3.00	0.25						
50040076	PMS 7739C Green	42D108	8.579	84.65	1.317	7.26	15.35	0.55	0.05	3.00	0.26						
50040078	PMS 7716C Green	42D109	8.475	83.14	1.429	7.05	16.86	0.55	0.05	3.00	0.25						
50040079	Xerox Green	42D113	8.464	83.48	1.398	7.07	16.52	0.55	0.05	3.00	0.25						
50040081	116 Shell Yellow	42Y107	8.823	84.19	1.395	7.43	15.81			3.00	0.26						
50045056	Infinium Blue	42E122	8.294	83.23	1.389	6.90	16.77	0.11	0.01	1.47	0.12	5.56	0.46			0.01	0.001
	Worst-Case		10.21	87.48	1.44	8.78	16.86		0.05		0.31		0.58		0.002		0.001

[a] Product constituent information updated in 2021 renewal based on most recent Safety Data Sheet (SDS) or Environmental Data Sheet (EDS) for paint materials.

[b] Density and VOC (lb/gal) based on most recent Safety Data Sheet (SDS) or Environmental Data Sheet (EDS) for paint materials.

[c] % Volatile by Weight calculated from VOC content and density if SDS data unavailable

[d] % of solid by weight calculated from the percent volatile by weight

[e] Considered a component of certain glycol ethers, per NC Glycol Ethers database: https://deq.nc.gov/about/divisions/air-quality/air-quality-data/glycol-ethers

Solvent Constituent Information

Solvent Product	Product Number	Density (lb/gal)[a]	VOC Content (lb/gal)[a]	Methyl Ethyl Keytone 78-93-3 (wt. %)[a]	Methyl Ethyl Keytone 78-93-3 (lb/gal)
Acetone[b]	193941	6.57	0.00		
Cleaning Fluid (LT-4526)	697798	6.67	2.39		
Glycol Ether EB	621752	7.54	7.54		
Methyl Ethyl Ketone	300230	6.76	6.76	100.00	6.76
Mineral Spirits	624270	6.33	6.33		

[a] Obtained from MSDS

[b] Acetone is inlcuded as a solvent, but is considered an exempt VOC. Therfore, the use of actone is not included in downstream emission calculations.

Seam Sealer Constituent Information

Seam Sealer Product	Product Number	% Solids Weight[a]	Density (lb/gal)[a]	VOC Content (lb/gal)[a]	VOC Content (wt%)
DAREX DRUM CMPD[b]	L14DISK	N/A	N/A	0.0%	0.0%

[a] Obtained from MSDS

[b] New material added in 2021 renewal. Material does not contain and HAP/TAP/VOC, density and solids content not available in SDS.

Silk Screen Ink Constituent Information

Ink Product	Product Number	% Solids Weight[b]	Solids Content (lb/gal)[b]	Density (lb/gal)[a]	VOC Content (lb/gal)[a]	Xylene 7439-96-5 (wt.%)[a]	Xylene 7439-96-5 (lb/gal)	Ethyl Benzene 100-41-4 (wt. %)[a]	Ethyl Benzene 100-41-4 (lb/gal)
Silk Screen Ink	59112	75.0%	8.57	11.43	2.86	5.00	0.57	0.50	0.06

[a] Obtained from MSDS

[b] Calculated value assuming ink is made up entirely of VOC and solids

Parts Lining/Painting Work Station (ES-01)

Parameters

Potential Parts Production Rate (parts/hour) =	1,000	
Gallons of Lining per drum (gal/drum) =	0.04	* Total lining applied in ES-01 and ES-02
Total gallons of Lining per hour (gal/hr) =	19.540	* Total lining applied in ES-01 and ES-02
Gallons of Lining per part (gal/part) =	0.006	* Lining applied in ES-01
Total parts per drum (parts/drum) =	2.0	
	Lining	Cleaning Fluid
Percent of Facility-wide usage (%) =	40	25
Facility-wide Potential Usage Rate (gal/yr) =	56,100	6,000
Booth Potential Hourly Usage Rate (gal/hr)[a] =	7.82	5.00
Worst VOC Content (lb VOC/gal) =	4.30	2.39
Control Efficiency =	99	
Percent Overspray =	45	

Potential Emissions

Pollutant	Worst Case Pollutant Lining Content (lb/gal)	Booth Lining Emissions (lb/hr)	Booth Lining Emissions (lb/yr)	Cleaning Fluid Density (lb/gal)	Booth Cleaning Emissions (lb/hr)	Booth Cleaning Emissions (lb/yr)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	4.15	0.15	418.99	-	-	-	0.15	418.99	0.21
VOC	4.30	33.61	96,492.00	2.39	11.95	3,585.00	45.56	100,077.00	50.04
Phenol	0.30	2.35	6,748.16	-	-	-	2.35	6,748.16	3.37
Formaldehyde	0.04	0.33	943.94	-	-	-	0.33	943.94	0.47
Xylene	0.27	2.11	6,057.63	-	-	-	2.11	6,057.63	3.03
Ethyl Benzene	0.01	0.11	311.65	-	-	-	0.11	311.65	0.16
Methanol	0.10	0.79	2,278.92	-	-	-	0.79	2,278.92	1.14
Cresols	0.13	1.02	2,917.20	-	-	-	1.02	2,917.20	1.46

[a] All VOC and organic HAP/TAP assumed to be emitted in the oven (OV-2).

Shell Lining Booth (ES-02)

Parameters

	Lining	Cleaning Fluid	
Potential Shell Production Rate (shells/hr) =	700		* 1 drum = 1 shell
Gallons of Lining per drum (gal/drum) =	0.04		* Total lining applied in ES-01 and ES-02
Total gallons of Lining per hour (gal/hr) =	27.356		* Total lining applied in ES-01 and ES-02
Gallons of Lining per Shell (gal/shell) =	0.028		* Lining applied in ES-02
Percent of Facility-wide usage (%) =	60	75	
Facility-wide Potential Usage Rate (gal/yr) =	56,100	6,000	
Booth Potential Hourly Usage Rate (gal/hr)[a] =	16.41	5.00	
Worst VOC Content (lb VOC/gal) =	4.30	2.39	
Control Efficiency =	99		
Percent Overspray =	28		

Potential Emissions [a]

Pollutant	Worst Case Pollutant Lining content (lb/gal)	Booth Lining Emissions (lb/hr)	Booth Lining Emissions (lb/yr)	Cleaning Fluid Density (lb/gal)	Booth Cleaning Emissions (lb/hr)	Booth Cleaning Emissions (lb/yr)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	4.15	0.19	391.05	-	-	-	0.19	391.05	0.20
VOC	4.30	70.58	144,738.00	2.39	11.95	10,755.00	82.53	155,493.00	77.75
Phenol	0.30	4.94	10,122.24	-	-	-	4.94	10,122.24	5.06
Formaldehyde	0.04	0.69	1,415.91	-	-	-	0.69	1,415.91	0.71
Xylene	0.27	4.43	9,086.45	-	-	-	4.43	9,086.45	4.54
Ethyl Benzene	0.01	0.23	467.47	-	-	-	0.23	467.47	0.23
Methanol	0.10	1.67	3,418.37	-	-	-	1.67	3,418.37	1.71
Cresols	0.13	2.13	4,375.80	-	-	-	2.13	4,375.80	2.19

[a] All VOC and organic HAP/TAP assumed to be emitted in the oven (OV-2).

Drum Paint Booth (ES-05)

Parameters

Operation:	Painting	Booth Cleaning	Paint Gun Cleaning
Material Used:	Paint	Glycol Ether EB	MEK
Percent of Facility-wide usage (%) =	100	100	100
Facility-wide Potential Usage Rate (gal/yr) =	52,300	1,500	330
Booth Potential Hourly Usage Rate (gal/hr)[a] =	10.00	0.50	0.11
Worst-Case VOC Content (lb VOC/gal) =	1.44	7.54	6.76
Control Efficiency =	99 %		
Percent Overspray =	38 %		

Potential Emissions

Pollutant	Painting: Worst Case Pollutant Content (lb/gal)	Painting: Emissions[a] (lb/hr)	Painting: Emissions[a] (lb/yr)	Booth Cleaning: Worst Case Pollutant Content (lb/gal)	Booth Cleaning: Emissions (lb/hr)	Booth Cleaning: Emissions (lb/yr)	Paint Gun Cleaning: Worst Case Pollutant Content (lb/gal)	Paint Gun Cleaning: Emissions (lb/hr)	Paint Gun Cleaning: Emissions (lb/yr)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
PM	8.78	0.33	1,745.53	-	-	-	-	-	-	0.33	1,745.53	0.87
VOC	1.44	14.36	75,102.80	7.54	3.77	11,309.04	6.76	0.74	2,229.28	18.87	88,641.12	44.32
Methyl Ethyl Ketone	-	-	-	-	-	-	6.76	0.74	2,229.28	0.74	2,229.28	1.11
Toluene	0.05	0.48	2,502.84	-	-	-	-	-	-	0.48	2,502.84	1.25
2-Butoxyethanol	0.58	5.79	30,258.42	-	-	-	-	-	-	5.79	30,258.42	15.13
Formaldehyde	0.001	0.01	45.30	-	-	-	-	-	-	0.01	45.30	0.02
Glycol Ethers	0.31	3.08	16,111.65	-	-	-	-	-	-	3.08	16,111.65	8.06

[a] Emissions assume 100% VOC flash-off during painting operations within the paint booth, with no VOC emissions from paint in oven.

Silk Screen/ Stenciling (SILK)

Parameters

Potential Drum Production Rate (drums/hr) =	700	
Total drum production in 2020 (drums) =	33,899	
Total gallons of Material used per year in 2020=	55	41
	Mineral Spirits	Silk Screen Ink
Percent of Facility-wide usage (%) =	100	100
Facility-wide Potential Usage Rate (gal/yr) =	260	500
Booth Potential Hourly Usage Rate (gal/hr) =	1.14	0.85
VOC Content (lb VOC/gal) =	6.33	2.86

Potential Emissions [a]

Pollutant	Mineral Spirits Pollutant Content (lb/gal)	Mineral Spirits Emissions (lb/hr)	Mineral Spirits Emissions (lb/yr)	Silk Screen Ink Pollutant Content (lb/gal)	Booth Silk Screen Ink Emissions (lb/hr)	Booth Silk Screen Ink Emissions (lb/yr)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
VOC	6.33	7.19	1,645.80	2.86	2.42	1,430.00	9.61	3,075.80	1.54
Xylene	-	-	-	0.57	0.48	285.65	0.48	285.65	0.14
Ethyl Benzene	-	-	-	0.06	4.84E-02	28.56	4.84E-02	28.56	0.01

[a] Emissions assume 0 % solids emissions from the screening/stenciling process. No PM emissions due to no spraying

Compounding Operation - Seam Sealer Application (SEAM)

Parameters

Potential Shell Production Rate (drums/hr) =	700
Total drum production in 2020 (drums) =	949,340
Total lbs of Material usage in 2020 =	18,109
	Seam Sealer
Percent of Facility-wide usage (%) =	100
Facility-wide Potential Usage Rate (lb/yr) =	38,000
Booth Potential Hourly Usage Rate (lb/hr) =	13.35
Worst VOC Content (lb VOC/gal) =	0.00

Potential Emissions

Pollutant	Seam Sealer Pollutant Content[a] (wt %)	Seam Sealer Emissions (lb/hr)	Seam Sealer Emissions (lb/yr)	Total Emissions (lb/hr)	Total Emissions (lb/yr)	Total Emissions (ton/yr)
VOC	0.00	0.00	0.00	0.00	0.00	0.00
Aqueous Ammonia	0.00	0.00	0.00	0.00	0.00	0.00
Triethylamine	0.00	0.00	0.00	0.00	0.00	0.00

[a] Material changed in 2020. Does not contain and HAP/TAP/VOC.

OV-2 Drying Oven for Parts Lining and Shell Lining Station

Parameters

Heating Value of Natural Gas	1,020	Btu/scf
Maximum Heat Input Rate	5.00	MMBtu/hr
Potential Hours of Operation	8,760	hr/yr

Criteria Pollutant Summary

Pollutant	Emission Factor[a] (lb/MMCF burned)	Potential Emissions[b] (lb/hr)	(tpy)
PM	0.52	2.55E-03	1.12E-02
PM_{10}[c]	0.52	2.55E-03	1.12E-02
$PM_{2.5}$	0.43	2.11E-03	9.20E-03
SO_2	0.6	2.94E-03	1.29E-02
NO_x	100	4.90E-01	2.15E+00
VOC	5.5	2.70E-02	1.18E-01
CO	84	4.12E-01	1.80E+00
CO_2	119,317	5.85E+02	2.56E+03
N_2O	2.2	1.10E-02	4.83E-02
CH_4	0.2	1.10E-03	4.80E-03
CO_2e[d]	-	588.20	2,576.31

Toxic/Hazardous Air Pollutant Summary

Pollutant	Emission Factor[a] (lb/MMCF burned)	Potential Emissions[b] (lb/yr)	(tpy)
Acetaldehyde	1.52E-05	6.53E-04	3.26E-07
Acrolein	1.80E-05	7.73E-04	3.86E-07
Ammonia	3.20E+00	1.37E+02	6.87E-02
Arsenic	2.00E-04	8.59E-03	4.29E-06
Benzene	2.10E-03	9.02E-02	4.51E-05
Benzo(a)pyrene	1.20E-06	5.15E-05	2.60E-08
Beryllium	1.20E-05	5.15E-04	2.58E-07
Cadmium	1.10E-03	4.72E-02	2.36E-05
Chromium (VI)	1.40E-03	6.01E-02	3.01E-05
Cobalt	8.40E-05	3.61E-03	1.80E-06
Formaldehyde	7.50E-02	3.22E+00	1.61E-03
n-Hexane	1.80E+00	7.73E+01	3.86E-02
Lead	5.00E-04	2.15E-02	1.07E-05
Manganese	3.80E-04	1.63E-02	8.16E-06
Mercury	2.60E-04	1.12E-02	5.58E-06
Napthalene	6.10E-04	2.62E-02	1.31E-05
Nickel	2.10E-03	9.02E-02	4.51E-05
Selenium	2.40E-05	1.03E-03	5.15E-07
Toluene	3.40E-03	1.46E-01	7.30E-05

[a] Emission factors from North Carolina Emission Estimation Spreadsheet for Natural Gas Combustion, revision N 1/5/2017

[b] Potential emissions are based on the units operating at the maximum heat input rate for 8,760 hours per year.

[c] All particulate matter assumed to be PM_{10}

[d] Global warming potential from 40 CFR 98 Subpart A Table A-1 (updated on November 29, 2013, effective January 1, 2014).

CO_2	1
CH_4	25
N_2O	298

OV-4 Drum Paint Booth Oven

Parameters

Heating Value of Natural Gas	1,020	Btu/scf
Maximum Heat Input Rate	5	MMBtu/hr
Potential Hours of Operation	8,760	hr/yr

Criteria Pollutant Summary

Pollutant	Emission Factor[a] (lb/MMCF burned)	Potential Emissions[b] (lb/hr)	(tpy)
PM	0.52	2.55E-03	1.12E-02
PM_{10}[c]	0.52	2.55E-03	1.12E-02
$PM_{2.5}$[c]	0.43	2.11E-03	9.20E-03
SO_2	0.6	2.94E-03	1.29E-02
NO_x	100	4.90E-01	2.15E+00
VOC	5.5	2.70E-02	1.18E-01
CO	84	4.12E-01	1.80E+00
CO_2	119,317	5.85E+02	2.56E+03
N_2O	2.2	1.10E-02	4.83E-02
CH_4	0.2	1.10E-03	4.80E-03
CO_2e[d]	-	588.20	2,576.31

Toxic/Hazardous Air Pollutant Summary

Pollutant	Emission Factora (lb/MMCF burned)	Potential Emissionsb (lb/yr)	(tpy)
Acetaldehyde	1.52E-05	6.53E-04	3.26E-07
Acrolein	1.80E-05	7.73E-04	3.86E-07
Ammonia	3.20E+00	1.37E+02	6.87E-02
Arsenic	2.00E-04	8.59E-03	4.29E-06
Benzene	2.10E-03	9.02E-02	4.51E-05
Benzo(a)pyrene	1.20E-06	5.15E-05	2.60E-08
Beryllium	1.20E-05	5.15E-04	2.58E-07
Cadmium	1.10E-03	4.72E-02	2.36E-05
Chromium (VI)	1.40E-03	6.01E-02	3.01E-05
Cobalt	8.40E-05	3.61E-03	1.80E-06
Formaldehyde	7.50E-02	3.22E+00	1.61E-03
n-Hexane	1.80E+00	7.73E+01	3.86E-02
Lead	5.00E-04	2.15E-02	1.07E-05
Manganese	3.80E-04	1.63E-02	8.16E-06
Mercury	2.60E-04	1.12E-02	5.58E-06
Napthalene	6.10E-04	2.62E-02	1.31E-05
Nickel	2.10E-03	9.02E-02	4.51E-05
Selenium	2.40E-05	1.03E-03	5.15E-07
Toluene	3.40E-03	1.46E-01	7.30E-05

[a] Emission factors from North Carolina Emission Estimation Spreadsheet for Natural Gas Combustion, revision N 1/5/2017

[b] Potential emissions are based on the units operating at the maximum heat input rate for 8,760 hours per year.

[c] All particulate matter emissions assumed to be less than 1 micrometer in aerodynamic diameter size.

[d] Global warming potential from 40 CFR 98 Subpart A Table A-1 (updated on November 29, 2013, effective January 1, 2014).

CO_2	1
CH_4	25
N_2O	298

Space Heater Combustion Emissions

Combustion Emission Factors [a]

Fuel	Heating Value (Btu/scf)	PM (lb/MMscf)	PM_{10} (lb/MMscf)	$PM_{2.5}$ (lb/MMscf)	NO_X (lb/MMscf)	CO (lb/MMscf)	VOC (lb/MMscf)	SO_2 (lb/MMscf)
Natural Gas	1,020	0.52	0.52	0.43	100	84	5.5	0.6

[a] Emission factors from North Carolina Emission Estimation Spreadsheet for Natural Gas Combustion, revision N 1/5/2017

Source List

Source ID	Source	Heating Value	
ISH1	Maintenance Dept	0.10	MMBtu/hr
ISH4	Auto Parts Lining Area	0.03	MMBtu/hr
ISH5	Press Dept 1	0.03	MMBtu/hr
ISH6	Press Dept 2	0.10	MMBtu/hr
ISH7	Cut-to-length Line	0.03	MMBtu/hr
ISH8	Welder	0.03	MMBtu/hr
ISH9	Horn Press Area	0.03	MMBtu/hr
ISH10	Coil Storage Area 1	0.25	MMBtu/hr
ISH11	Coil Storage Area 2	0.25	MMBtu/hr
ISH12	Coil Storage Area 3	0.25	MMBtu/hr
ISH13	Seamer Area	0.10	MMBtu/hr

Potential Criteria Pollutant Emissions

Emissions Unit	Heat Input (MMBtu/hr)	Hours of Operation (hr/yr)	Hourly Emissions [a] (lb/hr)							Annual Emissions [b] (tpy)						
			PM	PM_{10}	$PM_{2.5}$	NO_X	CO	VOC	SO_2	PM	PM_{10}	$PM_{2.5}$	NO_X	CO	VOC	SO_2
ISH1	0.10	8,760	5.10E-05	5.10E-05	4.22E-05	9.80E-03	8.24E-03	5.39E-04	5.88E-05	2.23E-04	2.23E-04	1.85E-04	4.29E-02	3.61E-02	2.36E-03	2.58E-04
ISH4	0.03	8,760	1.53E-05	1.53E-05	1.26E-05	2.94E-03	2.47E-03	1.62E-04	1.76E-05	6.70E-05	6.70E-05	5.54E-05	1.29E-02	1.08E-02	7.09E-04	7.73E-05
ISH5	0.03	8,760	1.53E-05	1.53E-05	1.26E-05	2.94E-03	2.47E-03	1.62E-04	1.76E-05	6.70E-05	6.70E-05	5.54E-05	1.29E-02	1.08E-02	7.09E-04	7.73E-05
ISH6	0.10	8,760	5.10E-05	5.10E-05	4.22E-05	9.80E-03	8.24E-03	5.39E-04	5.88E-05	2.23E-04	2.23E-04	1.85E-04	4.29E-02	3.61E-02	2.36E-03	2.58E-04
ISH7	0.03	8,760	1.53E-05	1.53E-05	1.26E-05	2.94E-03	2.47E-03	1.62E-04	1.76E-05	6.70E-05	6.70E-05	5.54E-05	1.29E-02	1.08E-02	7.09E-04	7.73E-05
ISH8	0.03	8,760	1.53E-05	1.53E-05	1.26E-05	2.94E-03	2.47E-03	1.62E-04	1.76E-05	6.70E-05	6.70E-05	5.54E-05	1.29E-02	1.08E-02	7.09E-04	7.73E-05
ISH9	0.03	8,760	1.53E-05	1.53E-05	1.26E-05	2.94E-03	2.47E-03	1.62E-04	1.76E-05	6.70E-05	6.70E-05	5.54E-05	1.29E-02	1.08E-02	7.09E-04	7.73E-05
ISH10	0.25	8,760	1.27E-04	1.27E-04	1.05E-04	2.45E-02	2.06E-02	1.35E-03	1.47E-04	5.58E-04	5.58E-04	4.62E-04	1.07E-01	9.02E-02	5.90E-03	6.44E-04
ISH11	0.25	8,760	1.27E-04	1.27E-04	1.05E-04	2.45E-02	2.06E-02	1.35E-03	1.47E-04	5.58E-04	5.58E-04	4.62E-04	1.07E-01	9.02E-02	5.90E-03	6.44E-04
ISH12	0.25	8,760	1.27E-04	1.27E-04	1.05E-04	2.45E-02	2.06E-02	1.35E-03	1.47E-04	5.58E-04	5.58E-04	4.62E-04	1.07E-01	9.02E-02	5.90E-03	6.44E-04
ISH13	0.10	8,760	5.10E-05	5.10E-05	4.22E-05	9.80E-03	8.24E-03	5.39E-04	5.88E-05	2.23E-04	2.23E-04	1.85E-04	4.29E-02	3.61E-02	2.36E-03	2.58E-04
Total	**1.20**		**0.00**	**0.00**	**0.00**	**0.12**	**0.10**	**0.01**	**7.06E-04**	**0.00**	**0.00**	**0.00**	**0.52**	**0.43**	**0.03**	**3.09E-03**

[a] Hourly Emissions (lb/hr) = [Heat Input (MMBtu/hr)] / [Heating Value (Btu/scf)] * [10^6 Btu/MMBtu] * [Emission Factor (lb/10^6 scf)]

[b] Annual Emissions (tpy) = [Hourly Emissions (lb/hr)] * [Hours of Operation (hr/yr)] / (2,000 lb/ton)

Appendix D
Potential Emission Calculations

Exempt Combustion Sources

Combined Maximum Heat Input	1.2	MMBtu/hr
Potential Hours of Operation	8,760	hours/yr
Potential Natural Gas Usage [a]	10	MMscf/yr
Heating Value of Natural Gas [b]	1,020	Btu/ft^3

Combined Toxic/Hazardous Air Pollutant Summary

Pollutant	Natural Gas Emission Factors [b] (lb/MMscf)	Potential Emissions [c,d] (lb/hr)	(lb/yr)	(tpy)
Acetaldehyde	1.52E-05	1.79E-08	1.57E-04	7.83E-08
Acrolein	1.80E-05	2.12E-08	1.86E-04	9.28E-08
Ammonia	3.20E+00	3.76E-03	3.30E+01	1.65E-02
Arsenic	2.00E-04	2.35E-07	2.06E-03	1.03E-06
Benzene	2.10E-03	2.47E-06	2.16E-02	1.08E-05
Benzo(a)pyrene	1.20E-06	1.41E-09	1.24E-05	6.18E-09
Beryllium	1.20E-05	1.41E-08	1.24E-04	6.18E-08
Cadmium	1.10E-03	1.29E-06	1.13E-02	5.67E-06
Chromium (VI)	1.40E-03	1.65E-06	1.44E-02	7.21E-06
Cobalt	8.40E-05	9.88E-08	8.66E-04	4.33E-07
Formaldehyde	7.50E-02	8.82E-05	7.73E-01	3.86E-04
n-Hexane	1.80E+00	2.12E-03	1.86E+01	9.28E-03
Lead	5.00E-04	5.88E-07	5.15E-03	2.58E-06
Manganese	3.80E-04	4.47E-07	3.92E-03	1.96E-06
Mercury	2.60E-04	3.06E-07	2.68E-03	1.34E-06
Napthalene	6.10E-04	7.18E-07	6.29E-03	3.14E-06
Nickel	2.10E-03	2.47E-06	2.16E-02	1.08E-05
Selenium	2.40E-05	2.82E-08	2.47E-04	1.24E-07
Toluene	3.40E-03	4.00E-06	3.50E-02	1.75E-05

[a] Potential natural gas usage is based on the maximum heat input and potential hours of operation.

[b] Emission factors from North Carolina Emission Estimation Spreadsheet for Natural Gas Combustion, revision N 1/5/2017

[c] Hourly emissions are based on the maximum combined heat input rate of the space heaters.

[d] Potential annual emissions are based on the combined potential natural gas usage for a calendar year.

Combined Greenhouse Gas (GHG) Emission Summary

Emission Factors [a]

Pollutant	Natural Gas Emission Factors (lb/MMscf)
CO_2	119,317
CH_4	2.2
N_2O	0.2

Pollutant	Potential Emissions [b] (lb/hr)	(lb/yr)	(tpy)
CO_2	1.40E+02	1,229,665	6.15E+02
CH_4	2.65E-03	23	1.16E-02
N_2O	2.65E-04	2	1.16E-03
CO_2e	1.41E+02	1,230,935	6.15E+02

[a] Emission factors, high heating values, and the global warming potentials below are from 40 CFR 98 Subparts A and C.

CO_2	1
CH_4	25
N_2O	298

[b] Hourly emissions are based on the maximum heat input rate of the boiler. Annual emissions are based on potential fuel usage.