

Commonwealth of Kentucky  
Division for Air Quality  
***STATEMENT OF BASIS / SUMMARY***

Conditional Major, Operating  
PERMIT ID: F-24-013  
John F. Ruggles, Jr. Inc. DBA Ruggles Sign  
93 Industry Drive  
Versailles, KY 40383

February 7, 2024  
Nathan Cox, Reviewer

Source ID: 21-239-00012  
Agency Interest #: 4231  
Activity ID: APE20230002

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## SECTION 1 - SOURCE DESCRIPTION

SIC Code and description: 3993, Signs and Advertising Specialties (signs).

Single Source Det.  Yes  No If Yes, Affiliated Source AI:

Source-wide Limit  Yes  No If Yes, See Section 4, Table A

28 Source Category  Yes  No If Yes, Category:

County: Woodford

Nonattainment Area  N/A  PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  Ozone  Lead  
If yes, list Classification:

PTE\* greater than 100 tpy for any criteria air pollutant  Yes  No  
If yes, for what pollutant(s)?  
 PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  VOC

PTE\* greater than 250 tpy for any criteria air pollutant  Yes  No  
If yes, for what pollutant(s)?  
 PM<sub>10</sub>  PM<sub>2.5</sub>  CO  NO<sub>x</sub>  SO<sub>2</sub>  VOC

PTE\* greater than 10 tpy for any single hazardous air pollutant (HAP)  Yes  No  
If yes, list which pollutant(s): Antimony, Dibutyl Phthalate, Ethyl Benzene, Glycol Ethers,  
Methyl Isobutyl Ketone, Naphthalene, Toluene, Xylenes.

PTE\* greater than 25 tpy for combined HAP  Yes  No

\*PTE does not include self-imposed emission limitations.

### Description of Facility:

John F. Ruggles, Jr. Inc. DBA Ruggles Sign manufactures advertisement signs for companies. The process consists of modified downdraft and cross draft paint booths with natural gas ovens, acid bath for brass, routers for metal and non-metal products, digital printers, and various other equipment.

**SECTION 2 – CURRENT APPLICATION AND EMISSION SUMMARY FORM**

Permit Number: F-24-013

Activity: APE20230002

Application Received: 9/14/2023

Application Complete: 11/13/2023

Permit Action:  Initial  Renewal  Significant Rev.  Minor Rev.  Administrative

Construction/Modification Requested?  Yes  No

Previous 502(b)(10) or Off-Permit Changes incorporated with this permit action  Yes  No

**Description of Action:**

- Renewal of the Conditional Major, Operating permit.
- Addition of one insignificant activity – one Haffner MAC-440 Profile Processing Center
- Replacement of one digital printer included in insignificant activity 14 – removal of one Mimaki digital printer to be replaced with one Mutoh Expert Jet 661 UF Digital Printer.
- Change of the source name to John F. Ruggles, Jr. Inc. DBA Ruggles Sign to match the entity’s legal name.

F-24-013 Emission Summary		
Pollutant	2022 Actual (tpy)	PTE F-24-013 (tpy)
CO	0.53	3.85
NOx	0.40	4.58
PT	0.23	30.87
PM <sub>10</sub>	0.23	21.05
PM <sub>2.5</sub>	0.18	16.48
SO <sub>2</sub>	0.001	0.03
VOC	7.00	467.82*
Lead	0.006	0.05
Greenhouse Gases (GHGs)		
Carbon Dioxide	226.62	5489.78
Methane	0.24	0.10
Nitrous Oxide	0.004	0.01
CO <sub>2</sub> Equivalent (CO <sub>2</sub> e)	234.05	5495.45
Hazardous Air Pollutants (HAPs)		
Antimony	0.24	26.09*
Dibutyl Phthalate	-	18.22*
Ethyl Benzene	0.87	10.14*
Glycol Ethers	0.08	35.88*
Methanol	0.005	1.21
Methyl Isobutyl Ketone	0.01	167.28*
Naphthalene	0.06	11.84*
Toluene	0.23	96.77*
Xylenes (Total)	5.95	156.46*
Combined HAPs:	7.38	524.32*

\*Note: Emissions limited by federally-enforceable emission limitations to ensure the source remains below major source thresholds and compliance with 401 KAR 63:020 .

**SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS**

<b>Emission Units #01, 04, 05 &amp; 06 Paint Spray Booths</b>				
<b>Pollutant</b>	<b>Emission Limit or Standard</b>	<b>Regulatory Basis for Emission Limit or Standard</b>	<b>Emission Factor Used and Basis</b>	<b>Compliance Method</b>
VOC	Source wide 90 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	12 month rolling total
Single HAP	Source-wide 9.0 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	12 month rolling total
Combined HAP	Source-wide 22.5 tpy	To preclude 401 KAR 52:020	Material Balance & MSDS	12 month rolling total
Opacity	20%	401 KAR 59:010, Section 3(1)	N/A	Weekly Observations and Recordkeeping
PM	2.34 lbs/hr	401 KAR 59:010, Section 3(2)	Material Balance & MSDS	Filter System, 90% C.E., Manufacturer's guarantee
Antimony	Source-wide 0.814 tpy	401 KAR 63:020	Material Balance & MSDS	12 month rolling total
Ethyl Benzene	Source-wide 2.88 tpy	401 KAR 63:020	Material Balance & MSDS	12 month rolling total
Naphthalene	Source-wide 0.217 tpy	401 KAR 63:020	Material Balance & MSDS	12 month rolling total

**Initial Construction Date:** See Below

**Process Description:**

**Emission Unit 01 Paint Spray Booth 1**

**Colors and Coatings:** Capacity: 2.81 gals/hr  
**Hardener:** Capacity: 0.563 gals/hr  
**Reducers:** Capacity: 0.563 gals/hr  
**Clean up:** Capacity: 0.073 gals/hr  
**Natural Gas Paint Booth Oven:** Capacity: 1.5 MMbtu/hr

**Description:**

Control equipment: Spray Booth Filter System  
 Control efficiency: 90%  
 Installation commenced: 2013

**Emission Unit 04 Paint Spray Booth 2**

**Colors and Coatings:** Capacity: 2.81 gals/hr  
**Hardener:** Capacity: 0.563 gals/hr  
**Reducers:** Capacity: 0.563 gals/hr  
**Clean up:** Capacity: 0.073 gals/hr  
**Natural Gas Paint Booth Oven:** Capacity: 2.0 MMbtu/hr

**Emission Units #01, 04, 05 & 06 Paint Spray Booths**

**Description:**

Control equipment: Spray Booth Filter System

Control efficiency: 90%

Installation commenced: 2013

**Emission Unit 05 Paint Spray Booth 3**

**Colors and Coatings:** Capacity: 2.81 gals/hr

**Hardener:** Capacity: 0.563 gals/hr

**Reducers:** Capacity: 0.563 gals/hr

**Clean up:** Capacity: 0.073 gals/hr

**Natural Gas Paint Booth Oven:** Capacity: 2.0 MMbtu/hr

**Description:**

Control equipment: Spray Booth Filter System

Control efficiency: 90%

Installation commenced: 2013

**Emission Unit 06 Paint Spray Booth 4**

**Colors and Coatings:** Capacity: 2.81 gals/hr

**Hardener:** Capacity: 0.563 gals/hr

**Reducers:** Capacity: 0.563 gals/hr

**Clean up:** Capacity: 0.073 gals/hr

**Natural Gas Paint Booth Oven:** Capacity: 1.5 MMbtu/hr

**Description:**

Control equipment: Spray Booth Filter System

Control efficiency: 90%

Installation commenced: 2021

**Applicable Regulations:**

**401 KAR 59:010, New process operations**, applicable to each affected facility or source associated with process operations, which are not subject to another emission standard with respect to particulate, commenced on or after July 2, 1975.

**401 KAR 63:020, Potentially Hazardous Matter and Toxic Substance Emissions**, applies to the potentially hazardous matter and toxic substance emissions from affected facilities.

**Precluded Regulations:**

**401 KAR 59:225, New miscellaneous metal parts and products surface coating operations** is precluded since the facility has a 90 tpy limit on VOC emissions and is located in an attainment area for ozone.

**Emission Units #01, 04, 05 & 06 Paint Spray Booths**

**401 KAR 63:002, Section 2(4)(rrr)** 40 C.F.R. 63.3880 to 63.3981, Tables 1 to 4, and Appendix A (Subpart MMMM), National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products is precluded since the facility has limits on HAPs below a major source status.

**Comments:** Emission factors from MSDS.

401 KAR 63:002, Section 2(4)(iiii) 40 C.F.R. 63.11169 to 63.11180, Table 1 (Subpart HHHHHH), National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, this regulation is not applicable because the source does not use coatings containing the targeted HAPs.

**Emission Point # 03 Emergency Natural Gas Generators**

**Initial Construction Date:** 2014

**Process Description:**

**Generac Emergency Natural Gas Generator**

Generac Model: 16384190100

Horsepower: 174.26

Max Fuel Consumption: 0.0012 MMscf/hr

**Applicable Regulation:**

**401 KAR 60:005 Section 2(2)(eeee)**, 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*

**401 KAR 63:002 Section 2(4)(eeee)**, 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

**Comments:**

EP03 Total Displacement (L) 5.4 L

**SECTION 3 – EMISSIONS, LIMITATIONS AND BASIS (CONTINUED)**

**Testing Requirements/Results**

N/A

**SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS**

**Table A - Group Requirements:**

<b>Emission and Operating Limit</b>	<b>Regulation</b>	<b>Emission Unit</b>
90 tpy of VOC emissions	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
9.0 tpy of individual HAP emissions	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
22.5 tpy of combined HAP emissions	401 KAR 52:030, <i>Federally-enforceable permits for nonmajor sources</i>	Source-wide
0.814 tpy of Antimony emissions	To comply with 401 KAR 63:020	Source-wide
2.88 tpy of Ethylbenzene emissions	To comply with 401 KAR 63:020	Source-wide
0.217 tpy of Naphthalene emissions	To comply with 401 KAR 63:020	Source-wide

**Table B - Summary of Applicable Regulations:**

<b>Applicable Regulations</b>	<b>Emission Unit</b>
<b>401 KAR 59:010, New process operations</b>	EU 01, 04, 05, 06
<b>401 KAR 63:020, Potentially Hazardous Matter and Toxic Substance Emissions</b>	EU 01, 04, 05, 06
<b>401 KAR 63:002 Section 2(4)(eeee), 40 C.F.R. 63.6580 to 63.6675, Tables 1a to 8, and Appendix A (Subpart ZZZZ), National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines</b>	EU 03
<b>401 KAR 60:005 Section 2(2)(eeee), 40 C.F.R. 60.4230 to 60.4248, Tables 1 to 4 (Subpart JJJJ), Standards of Performance for Stationary Spark Ignition Internal Combustion Engines</b>	EU 03

**Table C - Summary of Precluded Regulations:**

<b>Precluded Regulations</b>	<b>Emission Unit</b>
<b>401 KAR 59:225, New miscellaneous metal parts and products surface coating operations</b>	EU 01, 04, 05, 06
<b>401 KAR 63:002, Section 2(4)(rrr) 40 C.F.R. 63.3880 to 63.3981, Tables 1 to 4, and Appendix A (Subpart MMMM), National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products</b>	EU 01, 04, 05, 06

## **SECTION 4 – SOURCE INFORMATION AND REQUIREMENTS (CONTINUED)**

### **Table D - Summary of Non Applicable Regulations:**

N/A

#### **Air Toxic Analysis**

##### **401 KAR 63:020, *Potentially Hazardous Matter or Toxic Substances***

The Division for Air Quality (Division) has performed modeling using SCREEN View on February 1, 2024 of potentially hazardous matter or toxic substances (1,6-Hexamethylene Diisocyanate, Arsenic, Chromium, Cobalt, Cumene, Dibutyl Phthalate, Dichloromethane, Formaldehyde, Glycol Ethers, Hexane, Manganese, Methanol, Methyl Isobutyl Ketone, Methyl Methacrylate, Methylene Diphenyl Diisocyanate, Nickel, Toluene and Xylenes) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

The Division for Air Quality (Division) has performed modeling using AERMOD on February 16, 2024 of potentially hazardous matter or toxic substances (Antimony, Ethyl benzene, Naphthalene) that may be emitted by the facility based upon the process rates, material formulations, stack heights and other pertinent information provided by the applicant. Based upon this information, the Division has determined that the conditions outlined in this permit will assure compliance with the requirements of 401 KAR 63:020.

#### **Single Source Determination**

N/A

**SECTION 5 - PERMITTING HISTORY**

Permit	Permit Type	Activity#	Complete Date	Issuance Date	Summary of Action	PSD/Syn Minor
F-13-056	Initial	APE20130002	11/25/2013	3/2/2014	Initial Construction Permit	Synthetic Minor
F-13-056 R1	Admin Change	APE20170001	6/12/2017	6/26/2017	Address Change	N/A
F-18-055	Renewal	APE20180001	11/26/2018	3/2/2019	Renewal Permit	N/A
F-18-055 R1	Minor Revision	APE20200001	5/22/2020	9/7/2020	Addition of N.G emergency generator	N/A
F-18-0522 R2	Minor Revision	APE20210001	10/27/2021	2/20/2022	Name change, addition of paint booth 4 (EU06), addition of laser cutter (IA)	N/A

**SECTION 6 – PERMIT APPLICATION HISTORY**  
None.

## **APPENDIX A – ABBREVIATIONS AND ACRONYMS**

AAQS	– Ambient Air Quality Standards
BACT	– Best Available Control Technology
Btu	– British thermal unit
CAM	– Compliance Assurance Monitoring
CO	– Carbon Monoxide
Division	– Kentucky Division for Air Quality
ESP	– Electrostatic Precipitator
GHG	– Greenhouse Gas
HAP	– Hazardous Air Pollutant
HF	– Hydrogen Fluoride (Gaseous)
MSDS	– Material Safety Data Sheets
mmHg	– Millimeter of mercury column height
NAAQS	– National Ambient Air Quality Standards
NESHAP	– National Emissions Standards for Hazardous Air Pollutants
NO <sub>x</sub>	– Nitrogen Oxides
NSR	– New Source Review
PM	– Particulate Matter
PM <sub>10</sub>	– Particulate Matter equal to or smaller than 10 micrometers
PM <sub>2.5</sub>	– Particulate Matter equal to or smaller than 2.5 micrometers
PSD	– Prevention of Significant Deterioration
PTE	– Potential to Emit
SO <sub>2</sub>	– Sulfur Dioxide
TF	– Total Fluoride (Particulate & Gaseous)
VOC	– Volatile Organic Compounds