

**STATEMENT OF BASIS**  
Worthington Industries Theodore  
Theodore, Alabama  
Mobile County  
503-0007

This proposed Title V Major Source Operating Permit renewal is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans and other documents attached hereto or on file with the Air Division of the Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Worthington Industries Theodore (Worthington) was issued its existing Major Source Operating Permit (MSOP) on November 20, 2014, with an expiration date of January 3, 2020. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. Based on this rule, the application for renewal was due to the Department no later than July 3, 2019, but no earlier than July 3, 2018. An application for permit renewal was received by the Department on May 29, 2019. Based on this, the Department considers this to be a timely application.

Worthington is engaged in the manufacturing of portable bulk gas and liquid cylinders. Incoming metal components for the manufacturing of portable vessels are degreased in one of two (2) vapor degreasers. The gas cylinders are then assembled and welded into a unit, painted, and packaged. Liquid cylinders are assembled and welded into a unit, cleaned, polished, tested, and packaged. Incoming metal components for the manufacturing of bulk cylinders are conveyed to metal working operations which include cutting, forming, welding, etc. The components are then conveyed to abrasive blasting operations to remove rust and scale or roughening the surface in preparation for painting. Blasted components are then assembled. Once assembled, the unit is tested, painted in one of five (5) paint booths, and stored.

Based on the information provided in the Title V Permit application, Worthington is a major source for total HAPs, and single Hazardous Air Pollutants (HAPs) Methyl Ethyl Ketone and Xylene. There were no notable changes in the Worthington Title V renewal application.

The significant sources of air pollutants at the facility are:

- Solvent Metal Cleaning – Two (2) Vapor Degreasers
- Five (5) Surface Coating Operations
  - RDF Surface Coating Booth
  - Small Tank Prime/Finish Booth
  - High Bay Surface Coating Booth
  - Outside Tank Surface Coating Operation
  - Repair Shop Surface Coating Booth
- Wheelabrator Shot Blast Booth

Insignificant Activity

- Two (2) 1.2 MMBtu/hr Natural Gas Hot Water Boilers

Worthington's facility-wide Potential and Actual emissions are listed in the following table:

Pollutant	Potential	Actuals (2018 Air Emission Report)
	TPY	TPY
PM	33.02	0.08
SO <sub>2</sub>	17.34	0.0
NO <sub>x</sub>	0.97	0.1
CO	0.81	0.1
VOC	97.1	6.82
HAP	43.38	0.13
CO <sub>2e</sub>	1,739	<1,739

### **Solvent Metal Cleaning**

#### Process Description

Worthington uses two (2) vapor degreasers to degrease incoming metal components for the manufacturing of the portable vessels. There is also a metal cleaning operation that is done by hand. This operation uses Ethanol to clean the metal components.

40 CFR 63 Subpart T, "National Emissions Standards for Halogenated Solvent Cleaning" applies to any batch vapor, in-line vapor, in-line cold, or batch cold solvent cleaning machine that uses any solvent containing methylene, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride or chloroform, or any combination of these halogenated HAP solvents, in a total concentration greater than 5 percent by weight, as a cleaning and/or drying agent. The degreasers currently use n-Propyl Bromide a non HAP instead of TCE as the solvent for cleaning the metal. The facility has not used TCE since 2008. Worthington no longer uses any solvents listed in §63.460(a). Therefore, the facility is not subject to 40 CFR Subpart T.

#### Emissions Standards:

The degreasers are not subject to any emissions standards other than the visible emission standards listed in the general provisos of the permit.

#### Expected Emissions:

##### **Degreaser #1 and Degreaser #2**

VOC:

The expected VOC emissions are 8.28 lbs/hr (8.61 TPY) based on actual n-Propyl Bromide usage and material balance.

##### **Surface Coating Preparations (Cleaning)**

VOC:

The expected VOC emissions are 0.94 lbs/hr (1.18 TPY) based on actual Ethanol usage and material balance.

### Periodic Monitoring, Recordkeeping, and Reporting

These units are not subject to any emissions standards and do not require add-on controls. Therefore the degreasers are not subject to any additional monitoring or recordkeeping and reporting requirements other than those listed in the general provisos of the permit.

### CAM:

This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The solvent metal cleaning units potential pre-controlled emissions are less than the major source thresholds; therefore, these units would not be subject to Compliance Assurance Monitoring (CAM).

## **Surface Coating Operations**

### **RDF Surface Coating Booth (EP – RDF)**

Worthington uses the RDF Surface Coating Booth for surface preparation and finish painting of small portable tanks' prior to packaging. This unit is subject to 40 CFR 63 Subpart M "National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products". Emissions from the Surface Coating Booth are vented inside the building.

### Emission Standards:

The facility shall limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAPs per liter (gal) coating solids used during each 12 month compliance period. (40 CFR 63 Subpart M, §63.3890(b)(1))

The facility chose to comply with §63.3891(a) *Compliant material option*, which requires the facility to demonstrate that organic HAP content of each coating used in the coating operations is less than or equal to the applicable emission limits in §63.3890(b)(1), and that each thinner and/or other additive, and cleaning material used contains no organic HAP. The facility shall demonstrate continuous compliance according to the requirements of §63.3342.

### Expected Emissions:

#### **VOC:**

The expected VOC emissions are 3.25 lbs/hr (3.38 TPY). This is based on mass balance and the maximum expected application of 450 gallons of paint and 675 gallons of cleanup solvent during any consecutive twelve (12) month period.

#### **Particulate Matter (PM):**

The expected PM emissions are 0.045 lbs/hr (0.047 TPY). This is based on mass balance, 95% particulate filter efficiency, and the maximum expected application of 450 gallons of paint during any consecutive twelve (12) month period.

**HAP:**

The expected HAP emissions are based on mass balance and the maximum expected application of 450 gallons of paint during any consecutive twelve (12) month period.

Pollutant	Emission Rate	Emission Rate
	lb/hr	TPY
Toluene	0.98	1.02
Xylene	0.37	0.38
Ethylbenzene	0.12	0.12
MEK	2.18	2.27
<b>Total</b>	<b>3.65</b>	<b>3.79</b>

**Periodic Monitoring:**

The filter system associated with this source shall be inspected at least on an annual basis to ensure maintenance is performed in such a manner as to minimize the emissions of particulate matter. (*ADEM Admin. Code R. 335-3-16-.05(c)*)

**Recordkeeping and Reporting:**

Records of the required filter inspections, along with records of any maintenance performed on the filter(s) shall be kept in a form suitable for inspection for at least five years following the date of generation of the record. (*ADEM Admin. Code R. 335-3-16-.05(c)*)

This source is subject to the applicable requirements of 40 CFR Part 63 Subpart M, “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products” to include the recordkeeping and reporting in §63.3920(a), §63.3930(a-e), §63.3931(a & b), and §63.3942(b & c). (*40 CFR 63 Subpart M, §63.3920, §63.3930, §63.3931, and §63.3942(b & c)*)

The permittee shall submit semiannual compliance reports for each affected source according to the requirements of 40 CFR 63.3920. (*40 CFR 63 Subpart M §63.3920*)

The records from the facility operation must be in a form suitable and readily available for expeditious review. Where appropriate, the records may be maintained as electronic spreadsheets or as a database. The records must be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. (*40 CFR 63 Subpart M §63.3931*)

**CAM:**

This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The RFD Booth’s potential pre-controlled emissions are less than the major source thresholds; therefore, this unit would not be subject to Compliance Assurance Monitoring (CAM).

### **Small Tank Prime/Finish Booth (EP – STPF)**

Worthington uses the small tank prime/finish booth to prime, paint, and finish painting of fabricated small portable storage tanks prior to storage. This unit is subject to 40 CFR 63 Subpart M “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products”. Emissions from the Small Tank Prime/Finish Booth are vented inside the building.

#### **Emission Standards:**

The facility shall limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAPs per liter (gal) coating solids used during each 12 month compliance period. (40 CFR 63 Subpart M, §63.3890(b)(1))

#### **Expected Emissions:**

##### **VOC:**

The expected VOC emissions are 3.23 lbs/hr (6.05 TPY). This is based on mass balance and the maximum expected application of 2400 gallons of paint and 660 gallons of cleanup solvent during any consecutive twelve (12) month period.

##### **Particulate Matter (PM):**

The expected PM emissions are 0.13 lbs/hr (0.24 TPY). This is based on mass balance, 95% particulate filter efficiency, and the maximum expected application of 2400 gallons of paint during any consecutive twelve (12) month period.

##### **HAP:**

The expected HAP emissions are based on mass balance and the maximum expected application of 2400 gallons of paint during any consecutive twelve (12) month period.

Pollutant	Emission Rate	
	lb/hr	TPY
Xylene	1.47	2.75
Ethylbenzene	0.37	0.69
MEK	0.22	0.41
<b>Total</b>	<b>2.06</b>	<b>3.85</b>

#### **Periodic Monitoring:**

The periodic monitoring would be the same as for the RDF Surface Coating Booth.

#### **Recordkeeping and Reporting:**

The recordkeeping and reporting would be the same as for the RDF Surface Coating Booth.

#### **CAM:**

This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100

percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The small tank finish booth potential pre-controlled emissions are less than the major source thresholds; therefore, these units would not be subject to Compliance Assurance Monitoring (CAM).

### **High Bay Surface Coating Booth (EP – HB)**

Worthington uses the high bay surface coating booth to prime, paint, and finish painting of fabricated bulk storage tanks prior to storage. This unit is subject to 40 CFR 63 Subpart M “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products”. Emissions from the High Bay Surface Coating Booth are vented inside the building.

#### **Emission Standards:**

The facility shall limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAPs per liter (gal) coating solids used during each 12 month compliance period. (40 CFR 63 Subpart M, §63.3890(b)(1))

#### **Expected Emissions:**

##### **VOC:**

The expected VOC emissions are 3.23 lbs/hr (6.05 TPY). This is based on mass balance and the maximum expected application of 2400 gallons of paint and 660 gallons of cleanup solvent during any consecutive twelve (12) month period.

##### **Particulate Matter (PM):**

The expected PM emissions are 0.13 lbs/hr (0.24 TPY). This is based on mass balance, 95% particulate filter efficiency, and the maximum expected application of 2400 gallons of paint during any consecutive twelve (12) month period.

##### **HAP:**

The expected HAP emissions are based on mass balance and the maximum expected application of 2400 gallons of paint during any consecutive twelve (12) month period.

Pollutant	Emission Rate	Emission Rate
	lb/hr	TPY
Xylene	1.47	2.75
Ethylbenzene	0.37	0.69
MEK	0.22	0.41
<b>Total</b>	<b>2.06</b>	<b>3.85</b>

#### **Periodic Monitoring:**

The periodic monitoring would be the same as for the RDF Surface Coating Booth.

#### **Recordkeeping and Reporting:**

The recordkeeping and reporting would be the same as for the RDF Surface Coating Booth.

#### **CAM:**

This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The high bay surface booth's potential pre-controlled emissions are less than the major source thresholds; therefore, these units would not be subject to Compliance Assurance Monitoring (CAM).

### **Outside Tank Surface Coating Operation (EP – F-LTSC)**

Worthington uses the outside tank surface coating operation to surface coat large tanks outside in a spray tunnel that is open on both ends. Emissions from this operation are fugitive. This unit is subject to 40 CFR 63 Subpart Mmmm “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products”.

#### **Emission Standards:**

The facility shall limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAPs per liter (gal) coating solids used during each 12 month compliance period. (40 CFR 63 Subpart Mmmm, §63.3890(b)(1))

#### **Expected Emissions:**

##### **VOC:**

The expected VOC emissions are 3.23 lbs/hr (6.05 TPY). This is based on mass balance and the maximum expected application of 2400 gallons of paint and 660 gallons of cleanup solvent during any consecutive twelve (12) month period.

##### **HAP:**

The expected HAP emissions are based on mass balance and the maximum expected application of 2400 gallons of paint during any consecutive twelve (12) month period.

Pollutant	Emission Rate	
	lb/hr	TPY
Xylene	1.47	2.75
Ethylbenzene	0.37	0.69
MEK	0.22	0.41
<b>Total</b>	<b>2.06</b>	<b>3.85</b>

#### **Periodic Monitoring:**

The periodic monitoring would be the same as for the RDF Surface Coating Booth.

#### **Recordkeeping and Reporting:**

The recordkeeping and reporting would be the same as for the RDF Surface Coating Booth.

#### **CAM:**

This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or

standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The solvent metal cleaning units potential pre-controlled emissions are less than the major source thresholds; therefore, these units would not be subject to Compliance Assurance Monitoring (CAM).

### **Repair Shop Surface Coating Booth (EP – RB1)**

Worthington uses the repair shop surface coating booth to work on miscellaneous metal components and items that need additional touchups or coatings. These items are conveyed to a small surface coating spray booth. This unit is subject to 40 CFR 63 Subpart M “National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products”. Emissions from the Repair Shop Surface Coating Booth are vented inside the building.

#### **Emission Standards:**

The facility shall limit organic HAP emissions to no more than 0.31 kg (2.6 lb) organic HAPs per liter (gal) coating solids used during each 12 month compliance period. (40 CFR 63 Subpart M, §63.3890(b)(1)).

#### **Expected Emissions:**

##### **VOC:**

The expected VOC emissions are 0.007 lbs/hr (0.007 TPY). This is based on mass balance and the maximum expected application of 30 gallons of paint during any consecutive twelve (12) month period.

##### **Particulate Matter (PM):**

The expected PM emissions are 0.0015 lbs/hr (0.0015 TPY). This is based on mass balance, 95% particulate filter efficiency, and the maximum expected application of 30 gallons of paint during any consecutive twelve (12) month period.

##### **HAP:**

The coatings associated with this operation do not contain HAP.

#### **Periodic Monitoring:**

The periodic monitoring would be the same as for the RDF Surface Coating Booth.

#### **Recordkeeping and Reporting:**

The recordkeeping and reporting would be the same as for the RDF Surface Coating Booth.

#### **CAM:**

T This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The repair shop surface coating booth potential pre-controlled emissions are less than the major source thresholds; therefore, these units would not be subject to Compliance Assurance Monitoring (CAM).



## **Wheelabrator Shot Blast Booth**

Wothington uses the wheelabrator shot blast booth to remove steel “scale” and rust and generally prepare the surfaces of steel fabrications and plate components prior to further fabrication, final assembly, and painting of storage tanks.

### Emissions Standards:

Particulate matter emissions from this unit shall not exceed 4.32 lb/hr, the allowable emissions rate set by (Process Weight) (*ADEM Admin. Code R. 335-3-4-.04(1)*)  $E=3.59P^{0.62}$ , where: E = Emissions in pounds per hour and P = Process weight per hour in tons per hour.

This source shall not discharge more than one 6-minute average opacity of particulate emissions greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate emissions greater than 40%. Opacity will be determined by 40 CFR Part 60, Appendix A, Method 9, unless otherwise specified in the Unit Specific provisos of this permit. (*ADEM Admin. Code R. 335-3-4-.01(1)*)

### Expected Emissions:

#### **Particulate Matter (PM):**

The expected PM emissions are 0.69 lbs/hr (0.36 TPY). These emissions are based on the STAPPA/ALAPCO emissions factors.

### Periodic Monitoring:

Weekly visual observations of the stack associated with this unit (while the unit is in operation) shall be conducted by personnel familiar with Method 9 of 40 CFR Part 60, Appendix A. If any visible emissions are observed, personnel certified in accordance with Method 9 of 40 CFR Part 60, Appendix A shall observe the emissions within two hours of the initial observation. If the observer certified in accordance with Method 9 of 40 CFR Part 60, Appendix A determines the emissions have opacity of 10% or greater as determined by Method 9 of 40 CFR 60, Appendix A, the facility shall investigate and initiate any necessary corrective actions within 4 hours. After any corrective actions, an additional observation by personnel certified in accordance with Method 9 of 40 CFR 60, Appendix A shall be performed in order to verify that visible emissions have been reduced.

In the event that a week goes by without the operation of this source, a weekly visual inspection shall not be required. (*ADEM Admin. Code R. 335-3-16-.05(c)*)

### Recordkeeping and Reporting:

The source shall maintain a record of all inspections performed to satisfy the requirements of periodic monitoring. This shall include all problems observed and corrective actions taken. Each record shall be maintained for a period of 5 years. (*ADEM Admin. Code R. 335-3-16-.0(c)(2)*)

### CAM:

This subpart is applicable to an emission source provided the source meets the following criteria: it is subject to an emission limit or standard, it uses a control device to achieve compliance with the emissions limit or

standard, and it has pre-controlled emissions from a regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source [40 CFR 64.2(a)]. The wheelabrator shot blast potential pre-controlled emissions are less than the major source thresholds; therefore, this unit would not be subject to Compliance Assurance Monitoring (CAM).

Recommendation

Based on the above analysis and pending resolution of any comments received during the 30-day public comment period and 45 day EPA review, I recommend issuing Worthington Industries Theodore's Title V MSOP renewal.

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Paul J. Vaccaro  
Industrial Minerals Section  
Energy Branch  
Air Division

November 25, 2019

Date