

**ENGINEERING ANALYSIS
VESTIS SERVICES, LLC
DECATUR FACILITY
DECATUR, MORGAN COUNTY, ALABAMA
FACILITY NO. 712-0114
SYNTHETIC MINOR OPERATING PERMIT NO. X001**

On January 13, 2026, the Air Division received permit applications from Vestis Services, LLC (Vestis) for the proposed permitting of the existing industrial laundering operation at the Decatur Facility located in Decatur, Morgan County, Alabama. A revision to the permit application was received on July 24, 2026, and an addendum to the permit application was received on August 3, 2026, making the application complete. This facility is currently unpermitted. On July 5, 2000, the facility, which was still operating as Aramark, was issued a no permit required determination letter for the 10.46 MMBtu/hr natural gas-fired boiler. After review of the existing equipment and processes, the facility would be a synthetic minor source under Title V regulations and a minor source under PSD regulations. Synthetic Minor Operating Permit (SMOP) No. X001 would be issued as a result of this permitting action.

Existing Operations

The facility consists of one 10.46 MMBtu/hr Cleaver Brooks natural gas-fired boiler, eleven (11) industrial laundry washers, five (5) natural gas-fired industrial dryers, and one 0.8 MMBtu/hr natural gas-fired steam tunnel, which is an alternate drying process.

Soiled laundry is delivered to the facility via delivery trucks and is unloaded at the loading dock. The laundry is sorted and staged inside the building. Overhead rails/slings or totes are used to transport soiled laundry to one of the washers. Overhead rails/slings or totes move the clean, wet laundry to a natural gas-fired dryer. Clean, dry laundry is sorted for delivery to the customer.

Shop towels are industrial wipers used by customers to clean parts and equipment in manufacturing or maintenance processes. These textiles may be soiled with grease, solvents, metals (shavings and particulate), and cutting, lubricating and cooling oils. Soiled shop towels are delivered to the facility via delivery trucks and are unloaded at the loading dock. The towels typically arrive in route bags that are tagged with the customer's contact information. The shop towels are inspected, counted, and hand-sorted inside the building at designated counting stations. Sorted shop towels are placed into slings and transported to one of the washers and laundered by the same processes as regular soiled laundry.

Emissions

The pollutants of concern that are emitted from the existing laundering operation are volatile organic compounds (VOC). The pollutants of concern that are emitted from the boiler, five dryers, and steam tunnel are the products of combustion, which include nitrogen oxide (NO_x), carbon monoxide (CO), VOC, sulfur dioxide (SO₂), and particulate matter (PM), particulate matter ≤ 10 microns (PM₁₀), particulate matter ≤ 2.5 microns (PM_{2.5}), and particulate matter condensables (PM_{con}). The emissions for the combustion sources were calculated using EPA's procedures published in AP-42, *Compilation of Air Pollutant Emission Factors from Stationary Sources*, Chapter 1.4. Emissions for the laundering processes were calculated using emission factors based on emissions tests at similar facilities with a 25% increase conservatively applied to the proposed emissions factors. Emissions of other criteria pollutants and hazardous air pollutants (HAP) were considered and deemed insignificant. Emission calculations are included as Appendix A.

State Regulations

ADEM Admin. Code r. 335-3-4-.01, “Control of Particulate Emissions: Visible Emissions”

Each unit and process at the facility is subject to the State visible emission standards of ADEM Admin. Code r. 335-3-4-.01, which states that no air emission source may emit particulate of an opacity greater than 20% (as measured by a six-minute average) more than once during any 60 minute period and at no time shall emit particulate of an opacity greater than 40% (as measured by a six-minute average).

ADEM Admin. Code r. 335-3-4-.03, “Control of Particulate Emissions: Fuel Burning Equipment”

The boiler, five dryers, and steam tunnel are each subject to the State particulate emission standard found in ADEM Admin. Code r. 335-3-4-.03(1) and would be subject to the applicable emission rates for a new source as calculated by the following equation:

$$E = 1.38H^{0.44}$$

Where:

E = emissions in lb/million BTU and

H = heat input in millions of BTU/hr

The State allowable particulate emission rates for the fuel-burning equipment are included in the calculations in Appendix A. However, because each unit only burns natural gas, the particulate potential emission rate for each unit would be considered the allowable emission rate in lieu of the higher calculated State allowable. Each of these units would be expected to be able to comply with this standard because they would only burn natural gas.

ADEM Admin. Code r. 335-3-4-.04, “Control of Particulate Emissions: Process Industries – General”

The five dryers (lint) are each subject to the State particulate matter (as TSP) allowable emission standard, ADEM Admin. Code r. 335-3-4-.04(1). Each of the five dryers would have a process weight less than or equal to 30 TPH; therefore, the State TSP allowable emission rate is calculated using the following process weight equation:

$$E=3.59P^{0.62}$$

Where, P < 30 TPH

To determine whether each dryer would be capable of complying with the applicable hourly State TSP allowable emission rate, potential hourly emissions were calculated using AP-42 emission factors. Based on the results of these calculations (see Appendix A), each dryer would be expected to be able to comply with this standard. However, because each dryer only burns natural gas and utilizes integrated lint filters serving as a particulate control device, the TSP potential emission rate for each dryer while burning natural gas would be considered the allowable emission rate in lieu of the higher calculated State allowable.

ADEM Admin. Code r. 335-3-5-.01, “Control of Sulfur Compound Emissions: Fuel Combustion”

The natural gas-fired boiler, five dryers, and steam tunnel are each subject to ADEM Admin. Code r. 335-3-5-.01(1)(b), the State SO₂ emission standard of 4.0 pounds per million BTU heat input. The State allowable SO₂ emission rates for the fuel-burning equipment are included in the calculations in Appendix A. However, because each unit only burns natural gas, the SO₂ potential emission rate for each unit while burning natural gas would be considered the allowable emission rate in lieu of the

higher calculated State allowable. Each of these units would be expected to be able to comply with this standard because they would only burn natural gas.

Federal Regulations

Title V

Currently, the facility-wide potential emissions could exceed the 100 TPY major source threshold for VOC under Title V regulations. In order to remain below the major source threshold of 100 TPY for VOC, Vestis has requested a shop towel processing throughput limit of 20,000,000 pounds per year on a 12-month rolling total basis. As a result, Vestis would be a synthetic minor source under Title V regulations.

PSD

The facility operations are not one of the 28 listed major source categories, and the facility is located in an attainment area for all criteria pollutants; therefore, the PSD major source threshold of concern is 250 TPY for criteria pollutants. The facility would be a minor source under PSD regulations because the facility-wide potential emissions for all criteria pollutants are less than 250 TPY.

New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (Subpart Dc) (Adopted by reference in ADEM Admin. Code r. 335-3-10-.02(2)(c))

Based on the size (10.46 MMBtu/hr) and date of installation (1998), the natural gas-fired boiler would be subject to 40 CFR Part 60, Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (Subpart Dc). Due to the exclusive use of natural gas as fuel, the requirements applicable to the boiler under this Subpart would be maintaining records of fuel usage in a permanent form suitable for inspection. Records may be recorded on a daily or monthly basis in accordance with 40 CFR §60.48c(g). All records required under Subpart Dc must be maintained for a period of two years from the date of generation and be made available upon request as required by 40 CFR §60.48c(i).

NESHAP/MACT

40 CFR Part 63, Subpart JJJJJJ, the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources (Subpart JJJJJJ)

The natural gas-fired boiler meets the definition of a gas-fired boiler as listed in 40 CFR §63.11237; therefore, in accordance with 40 CFR §63.11195(e), the boiler would not be subject to this Subpart.

Emissions Testing

I recommend that no emissions testing be required at this time because the calculations in Appendix A indicate the existing units and processes would be expected to be able to comply with all State and federal emission standards.

Emissions Monitoring, Recordkeeping, and Reporting Requirements

To monitor compliance with the shop towel processing throughput limit of 20,000,000 pounds per year on a 12-month rolling total basis, Vestis would be required to calculate and record the monthly and

12-month rolling total pounds of shop towels processed from the laundering operations by the 10th day of each month for the previous month and 12-month period. Vestis would be required to maintain these records onsite in a permanent form readily available for inspection. Vestis would also be required to submit an annual report by January 30th of each year which provides the monthly and 12-month rolling total pounds of shop towels processed calculated during the previous calendar year.

Air Quality Impact

This facility is located in Morgan County, an attainment area for all criteria pollutants. This facility is located ~46 km from the Sipsey Wilderness Area, a PSD Class I Area, but emissions from this facility are not expected to significantly impact this area.

Public Comment

In accordance with ADEM Admin. Code r. 335-3-15-.05, the Air Division will initiate a 15-day public comment period in order to solicit public input regarding the Department's preliminary determination to issue SMOP No. 712-0114-X001 to Vestis.

Recommendations

Upon receipt of the required permitting fees and the resolution of any comments received during the public comment period, I recommend SMOP No. 712-0114-X001 be issued to Vestis for the following:

Industrial Laundering Process consisting of:

- 10.46 MMBtu/hr Cleaver Brooks Natural Gas-fired Boiler (40 CFR Part 60, Subpart Dc)
- 0.8 MMBtu/hr Natural Gas-fired Steam Tunnel
- Two (2) 400 lb G.A. Braun Industrial Washers
- One (1) 600 lb G.A. Braun Industrial Washer
- Four (4) 675 lb Ellis Industrial Washers
- One (1) 900 lb Ellis Industrial Washer
- Two (2) 200 lb Milnor Industrial Washers
- One (1) 90 lb G.A. Braun Industrial Washer
- Two (2) 2.90 MMBtu/hr Challenge Natural Gas-fired Dryers
- Two (2) 2.70 MMBtu/hr Challenge Natural Gas-fired Dryers
- One (1) 0.395 MMBtu/hr Unimac Natural Gas-fired Dryer

Andrea Escalante

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Chemical Branch
Air Division

August 3, 2026
Date

1061 712-0114 103 08-03-2026 SMOPEA ALE SMOP X001

Appendix A - Facility-wide Emissions
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114
Synthetic Minor Operating Permit (SMOP) No. X001

Permit No.	Unit Description	Potential Emissions (TPY) ¹							
		PM _{TOTAL}	PM _{CON}	PM ₁₀	PM _{2.5}	NO _x	CO	SO ₂	VOC
SMOP X001	10.46 MMBtu/hr NGF Boiler No.1	0.34	0.26	0.09	0.09	4.49	3.77	0.03	0.25
	0.8 MMBtu/hr NGF Steam Tunnel	0.03	0.02	0.01	0.01	0.34	0.29	0.00	0.02
	2.90 MMBtu/hr NGF Dryer No. 1	0.09	0.07	0.02	0.02	1.25	1.05	0.01	0.07
	2.90 MMBtu/hr NGF Dryer No. 2	0.09	0.07	0.02	0.02	1.25	1.05	0.01	0.07
	2.70 MMBtu/hr NGF Dryer No. 3	0.09	0.07	0.02	0.02	1.16	0.97	0.01	0.06
	2.70 MMBtu/hr NGF Dryer No. 4	0.09	0.07	0.02	0.02	1.16	0.97	0.01	0.06
	0.395 MMBtu/hr NGF Dryer No. 5	0.01	0.01	0.00	0.00	0.17	0.14	0.00	0.01
	Dryers (Lint + Shop Towels) ²	10.18		0.61	0.61				70.80
	Washers (Shop Towels) ²								7.80
	WWTP (Shop Towels) ²								2.80
	All other Shop Towel Fugitives ²								12.60
PROPOSED TOTAL		10.92	0.57	0.79	0.79	9.82	8.24	0.07	94.54

¹ Potential emissions based on shop towel processing limit of 20,000,000 pounds of shop towels per year on a 12 month rolling total basis.

² Potential emissions provided by Vestis Services, LLC. See SMOP application dated July 24, 2026.

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 10.46 MMBtu/hr Cleaver Brooks Model CB-700-250-150 Natural Gas-fired Boiler

Operating Parameters:

<i>Operating Capacity:</i>	10.46	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(\frac{H}{10.46 \text{ MMBtu/hr}} \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{10.46 \text{ MMBtu/hr}}{10.46 \text{ MMBtu/hr}} \right)^{-0.44} = \frac{0.49 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.49 \text{ lb}}{\text{MMBtu}} \times \frac{10.46 \text{ MMBtu/hr}}{10.46 \text{ MMBtu/hr}} = \frac{5.14 \text{ lb}}{\text{hr}} \quad \text{or} \quad 22.51 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \times \frac{10.46 \text{ MMBtu/hr}}{10.46 \text{ MMBtu/hr}} = \frac{42 \text{ lb}}{\text{hr}} \quad \text{or} \quad 183.26 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.01 lb/hr (0.03 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{10.46 \times 10^6 \text{ Btu}}{\text{hr}} \times \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{10,255 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{1.03 \text{ lb}}{\text{hr}} \quad \text{or} \quad 4.49 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.86 \text{ lb}}{\text{hr}} \quad \text{or} \quad 3.77 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.03 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.06 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.25 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.08 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.34 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.09 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.09 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \times \frac{10,255 \text{ cf}}{\text{hr}} = \frac{0.06 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.26 \text{ TPY @ 8760 hr/yr}$$

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 0.8 MMBtu/hr Model CFS 2100-2 G/S-X Natural Gas-fired Steam Tunnel

Operating Parameters:

<i>Operating Capacity:</i>	0.8	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(H \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{0.8 \text{ MMBtu}}{\text{hr}} \right)^{-0.44} = \frac{0.50 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.50 \text{ lb}}{\text{MMBtu}} \mid \frac{0.8 \text{ MMBtu}}{\text{hr}} = \frac{0.40 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.75 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \mid \frac{0.8 \text{ MMBtu}}{\text{hr}} = \frac{3.2 \text{ lb}}{\text{hr}} \quad \text{or} \quad 14.02 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.00 lb/hr (0 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{0.8 \times 10^6 \text{ Btu}}{\text{hr}} \mid \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{784 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.08 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.34 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.07 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.29 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.00 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.03 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \mid \frac{784 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 2.90 MMBtu/hr Challenge Model CPG6.04.022B Natural Gas-fired Dryer No. 1

Operating Parameters:

<i>Operating Capacity:</i>	2.9	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(\frac{H}{\text{MMBtu/hr}} \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{2.9 \text{ MMBtu/hr}}{\text{hr}} \right)^{-0.44} = \frac{0.50 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.50 \text{ lb}}{\text{MMBtu}} \mid \frac{2.9 \text{ MMBtu}}{\text{hr}} = \frac{1.45 \text{ lb}}{\text{hr}} \quad \text{or} \quad 6.35 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \mid \frac{2.9 \text{ MMBtu}}{\text{hr}} = \frac{12 \text{ lb}}{\text{hr}} \quad \text{or} \quad 50.81 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.00 lb/hr (0.01 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{2.9 \times 10^6 \text{ Btu}}{\text{hr}} \mid \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{2,843 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.28 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.25 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.24 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.05 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.07 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.09 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.07 \text{ TPY @ 8760 hr/yr}$$

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 2.90 MMBtu/hr Challenge Model CPG6.04.022B Natural Gas-fired Dryer No. 2

Operating Parameters:

<i>Operating Capacity:</i>	2.9	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(\frac{H}{\text{MMBtu/hr}} \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{2.9 \text{ MMBtu}}{\text{hr}} \right)^{-0.44} = \frac{0.50 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.50 \text{ lb}}{\text{MMBtu}} \mid \frac{2.9 \text{ MMBtu}}{\text{hr}} = \frac{1.45 \text{ lb}}{\text{hr}} \quad \text{or} \quad 6.35 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \mid \frac{2.9 \text{ MMBtu}}{\text{hr}} = \frac{12 \text{ lb}}{\text{hr}} \quad \text{or} \quad 50.81 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.00 lb/hr (0.01 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{2.9 \times 10^6 \text{ Btu}}{\text{hr}} \mid \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{2,843 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.28 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.25 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.24 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.05 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.07 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.09 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,843 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.07 \text{ TPY @ 8760 hr/yr}$$

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 2.70 MMBtu/hr Challenge Model CPG-400-3 Natural Gas-fired Dryer No. 3

Operating Parameters:

<i>Operating Capacity:</i>	2.7	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(\frac{H}{\text{MMBtu/hr}} \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{2.7 \text{ MMBtu/hr}}{\text{hr}} \right)^{-0.44} = \frac{0.50 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.50 \text{ lb}}{\text{MMBtu}} \mid \frac{2.7 \text{ MMBtu}}{\text{hr}} = \frac{1.35 \text{ lb}}{\text{hr}} \quad \text{or} \quad 5.91 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \mid \frac{2.7 \text{ MMBtu}}{\text{hr}} = \frac{11 \text{ lb}}{\text{hr}} \quad \text{or} \quad 47.3 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.00 lb/hr (0.01 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{2.7 \times 10^6 \text{ Btu}}{\text{hr}} \mid \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{2,647 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.26 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.16 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.22 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.97 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.06 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.09 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.07 \text{ TPY @ 8760 hr/yr}$$

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 2.70 MMBtu/hr Challenge Model CPG-400-3L Natural Gas-fired Dryer No. 4

Operating Parameters:

<i>Operating Capacity:</i>	2.7	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(\frac{H}{\text{MMBtu/hr}} \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{2.7 \text{ MMBtu}}{\text{hr}} \right)^{-0.44} = \frac{0.50 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.50 \text{ lb}}{\text{MMBtu}} \mid \frac{2.7 \text{ MMBtu}}{\text{hr}} = \frac{1.35 \text{ lb}}{\text{hr}} \quad \text{or} \quad 5.91 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \mid \frac{2.7 \text{ MMBtu}}{\text{hr}} = \frac{11 \text{ lb}}{\text{hr}} \quad \text{or} \quad 47.3 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.00 lb/hr (0.01 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{2.7 \times 10^6 \text{ Btu}}{\text{hr}} \mid \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{2,647 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.26 \text{ lb}}{\text{hr}} \quad \text{or} \quad 1.16 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.22 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.97 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.06 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.09 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.01 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.02 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \mid \frac{2,647 \text{ cf}}{\text{hr}} = \frac{0.02 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.07 \text{ TPY @ 8760 hr/yr}$$

Appendix A
Vestis Services, LLC - Decatur Facility - Facility No. 712-0114

SMOP X001 - 0.395 MMBtu/hr Unimac Model UT170NRUF6C2W04 Natural Gas-fired Dryer No. 5

Operating Parameters:

<i>Operating Capacity:</i>	0.395	MMBtu/hr	<i>County Location:</i>	Morgan
<i>Hours of Operation:</i>	8760	hr/yr	<i>County TSP Class:</i>	1
<i>Control Device Efficiency:</i>	None		<i>County SO2 Category:</i>	II
<i>Fuel Source:</i>	Natural Gas		<i>New Source?:</i>	Y
<i>Fuel Heat Content:</i>	1020	Btu/scf		

Allowable TSP Emissions: ADEM Admin. Code r. 335-3-4-.03(1)

$$E = 1.38 \left(H \right)^{-0.44} \quad \text{Where: } E = \text{Emissions in lb/MMBtu}$$

$$H = \text{Heat input in MMBtu/hr}$$

$$E = 1.38 \left(\frac{0.395 \text{ MMBtu}}{\text{hr}} \right)^{-0.44} = \frac{0.50 \text{ lb}}{\text{MMBtu}}$$

$$\frac{0.50 \text{ lb}}{\text{MMBtu}} \mid \frac{0.395 \text{ MMBtu}}{\text{hr}} = \frac{0.20 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.87 \text{ TPY}$$

Allowable SO2 Emissions: ADEM Admin. Code r. 335-3-5-.01(1)(b)

$$E = \frac{4 \text{ lb}}{\text{MMBtu}} \mid \frac{0.395 \text{ MMBtu}}{\text{hr}} = \frac{1.6 \text{ lb}}{\text{hr}} \quad \text{or} \quad 6.92 \text{ TPY}$$

Since these units fire natural gas exclusively, the SO2 allowable emission rate would be 0.00 lb/hr (0 TPY @ 8,760 hr/yr) [potential emission rate while firing natural gas] in lieu of the higher State allowable.

Potential/Expected Emissions

AP-42 Factors for External Combustion Sources (Table No. 1.4-1 and 1.4-2, Rev. 4/26)

Fuel Usage:

$$\frac{0.395 \times 10^6 \text{ Btu}}{\text{hr}} \mid \frac{1 \text{ cf}}{1020 \text{ Btu}} = \frac{387 \text{ cf}}{\text{hr}}$$

NO_x

$$\frac{100 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.04 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.17 \text{ TPY @ 8760 hr/yr}$$

CO

$$\frac{84 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.03 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.14 \text{ TPY @ 8760 hr/yr}$$

SO₂

$$\frac{0.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.00 \text{ TPY @ 8760 hr/yr}$$

VOC

$$\frac{5.5 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

PM Total (filterable and condensable)

$$\frac{7.6 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

PM₁₀ (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.00 \text{ TPY @ 8760 hr/yr}$$

PM_{2.5} (filterable)

$$\frac{1.9 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.00 \text{ TPY @ 8760 hr/yr}$$

PM_{CON} (condensable)

$$\frac{5.7 \text{ lb}}{10^6 \text{ cf}} \mid \frac{387 \text{ cf}}{\text{hr}} = \frac{0.00 \text{ lb}}{\text{hr}} \quad \text{or} \quad 0.01 \text{ TPY @ 8760 hr/yr}$$

Appendix A: Calculations

Table 1
Equipment Inventory
Vestis Services, LLC
Decatur, AL MC: 591

Boilers	Manufacturer	Quantity	Fuel	Capacity (MMBtu/hr)
Boiler # 1	Cleaver Brooks CB-700-250-150	1	Natural gas	10.461
			Total:	10.46

Washers	Manufacturer	Quantity	Capacity (clean dry lbs)
Washers #1 & 2	G.A. Braun	2	400
Washer #3	G.A. Braun	1	600
Washers #4,5,6, & 7	Ellis	4	675
Washer #8	Ellis	1	900
Washers #9 & 10	Milnor	2	200
Washer #11	G.A. Braun	1	90
			Total: 5,490

Dryers	Manufacturer	Quantity	Capacity (clean dry lbs)	Capacity (MMBtu/hr)
Dryers #1 & 2	Challenge 591-020-DRY-001	2	600	2.90
Dryers #3 & 4	Challenge	2	400	2.70
Dryer #5	Unimac	1	100	0.395
			2,100	11.60

Other	Manufacturer	Quantity	Fuel	Capacity (MMBtu/hr)
Steam Tunnel	-	1	Natural Gas	0.8
Heaters (exempt)	-	6	Natural Gas	0.05
				0.80

Table 2
Natural Gas Combustion Emission Calculations
Vestis Services, LLC
Decatur, AL

Equipment	EU-ID	Capacity (Mmbtu/hr)	Potential nat gas (MMCF/hr)	Potential nat gas (MMCF/year)
Boiler # 1	B01	10.461	1.0E-02	89.8
Dryer # 1	D01	2.90	2.8E-03	24.9
Dryer # 2	D02	2.90	2.8E-03	24.9
Dryer # 3	D03	2.70	2.6E-03	23.2
Dryer # 4	D04	2.70	2.6E-03	23.2
Dryer # 5	D05	0.40	3.9E-04	3.4
Steam Tunnel	ST	0.80	7.8E-04	6.9
Total:		22.856	2.2E-02	196.3

EF in lb/MMCF		PM - TOTAL 7.6	PM ₁₀ / 2.5 - Filterable 1.9	PM _{Condensable} 5.7	SO ₂ 0.6	NO _x 100	VOC 5.5	CO 84
Pollutant Emissions (lb/hr)								
Boiler # 1	B01	0.078	0.019	0.058	0.006	1.026	0.056	0.861
Dryer # 1	D01	0.022	0.005	0.016	0.002	0.284	0.016	0.239
Dryer # 2	D02	0.022	0.005	0.016	0.002	0.284	0.016	0.239
Dryer # 3	D03	0.020	0.005	0.015	0.002	0.265	0.015	0.222
Dryer # 4	D04	0.020	0.005	0.015	0.002	0.265	0.015	0.222
Dryer # 5	D05	0.003	0.001	0.002	0.000	0.039	0.002	0.033
Steam Tunnel	ST	0.006	0.001	0.004	0.000	0.078	0.004	0.066
Total PTE (lb/hr)		0.17	0.04	0.13	0.01	2.24	0.12	1.88
Pollutant Emissions (TPY)								
Boiler # 1	B01	0.341	0.085	0.256	0.027	4.492	0.247	3.773
Dryer # 1	D01	0.095	0.024	0.071	0.007	1.245	0.068	1.046
Dryer # 2	D02	0.095	0.024	0.071	0.007	1.245	0.068	1.046
Dryer # 3	D03	0.088	0.022	0.066	0.007	1.159	0.064	0.974
Dryer # 4	D04	0.088	0.022	0.066	0.007	1.159	0.064	0.974
Dryer # 5	D05	0.013	0.003	0.010	0.001	0.170	0.009	0.142
Steam Tunnel	ST	0.026	0.007	0.020	0.002	0.344	0.019	0.289
Total PTE (TPY)		0.75	0.19	0.56	0.06	9.81	0.54	8.24

HAPs - Organics						
EF in lb/MMCF	benzene 2.10E-03	dichlorobenzene 1.20E-03	formaldehyde 7.50E-02	hexane 1.8	toluene 3.40E-03	Total organics
Total PTE (TPY)	2.06E-04	1.18E-04	7.36E-03	0.18	3.34E-04	0.18

HAPs - Metals						
EF in lb/MMCF	lead 5.00E-04	cadmium 1.10E-03	chromium 1.40E-03	manganese 3.80E-04	nickel 2.10E-03	Total metals
Total PTE (TPY)	4.91E-05	1.08E-04	1.37E-04	3.73E-05	2.06E-04	5.38E-04
					Total HAPs	0.19
					Worst HAP	0.18

Notes:

EFs are from AP-42, Chapter 1.4-1, 1.4-2, 1.4-3.

The five highest organic and metal HAP emission factors were provided. Additional HAPs EF available in AP-42, Chapter 1.4.

1 MMCF = 1,020 MMBtu

Table 3
Particulate Matter Emissions from Dryer Lint
Vestis Services, LLC
Decatur, AL

Dryer duration (hrs) = 0.75
Max number of loads per dryer (loads/year)= 11,680
Emission Factor (lb PM/ton-wet laundry)^{1,2}= 0.83
Emission Factor (lb PM₁₀/ton-wet laundry)^{1,2}= 0.05

PM - PTE

Dryer ID	Max Capacity Dry Laundry (lb/load)	Max Capacity Wet Laundry (lb/load) ³	PM emissions (lb/hr)	PM emissions (TPY)
Dryer # 1	600	1,200	0.66	2.91
Dryer # 2	600	1,200	0.66	2.91
Dryer # 3	400	800	0.44	1.94
Dryer # 4	400	800	0.44	1.94
Dryer # 5	100	200	0.11	0.48
Total (TPY)=				10.18

PM₁₀/PM_{2.5} - PTE

Dryer ID	Max Capacity Dry Laundry (lb/load)	Max Capacity Wet Laundry (lb/load) ³	PM emissions (lb/hr)	PM emissions (TPY)
Dryer # 1	600	1,200	0.04	0.18
Dryer # 2	600	1,200	0.04	0.18
Dryer # 3	400	800	0.03	0.12
Dryer # 4	400	800	0.03	0.12
Dryer # 5	100	200	0.01	0.03
Total (TPY)=				0.61

Notes:

1. Emission factors from 2002 and 2003 stack test at Aramark Waterloo, IA facility using USEPA methods 5, 201A, 202. A 25% safety margin has been applied to the 3-run average stack test result.
2. Testing location was after lint trap. Lint traps are essential components for the dryer to operate safely and as such, are not considered emission control devices.
3. Maximum capacity of wet laundry assumes a factor of 2.0 to account for weight of the water.
4. Dryer cycle of 45 minutes, therefore process weight rate (ton/hr) = capacity(lbs)*60/45/2000.
5. Emission limit from 212.321(b) calculated using the formula: $E=2.54(P)^{0.534}$, where E is allowable emission rate (lb/hr), P is process weight rate (ton/hr).

Table 4
VOC Emissions from Washers, Dryers and Wastewater Treatment Plant
Vestis Services, LLC
Decatur, AL

Table 4A - Facility Total PTE

Emission Unit	Emission Factor ¹ (lb VOC/1,000 lb SST)	Max T-put of SST ² (1,000 lb-SST/year)	Unrestricted VOC PTE (TPY)	Limited Capacity (1,000 lb SST/yr) ³	Limited VOC PTE (TPY)
Washers	0.78	34,339	13.4	20,000	7.8
Dryers	7.08	34,339	121.6	20,000	70.8
WWTP	0.28	34,339	4.8	20,000	2.8
All other processes for SST laundering ⁴	1.26	34,339	21.6	20,000	12.6
Total:			161.4		94.0

Table 4B - Emission Unit PTE for Soiled Shop Towel Laundering

Emission Unit	CDW Rated Capacity (lbs)	Max Cap SST (lb SST/load)	SST Wash/Dry Cycle Time (hr/load)	Max Loads (SST/year)	Emis Factor (lb VOC/1,000 SST)	Max T-put (1,000 lb SST/yr)	Unrestricted VOC PTE (TPY)	Unrestricted VOC PTE (lb/hr)	Max T-put (lb SST/hr)	Max T-put (TPY)	Process Rate (based on capacity) (lb/hr)
Washers											
Washer # 1	400	560	1.083	8,086	0.78	4,528	1.77	0.40	516.9	2264.1	369.2
Washer # 2	400	560	1.083	8,086	0.78	4,528	1.77	0.40	516.9	2264.1	369.2
Washer # 3	600	840	1.083	8,086	0.78	6,792	2.65	0.60	775.4	3396.2	553.8
Washer # 4	675	945	1.083	8,086	0.78	7,641	2.98	0.68	872.3	3820.7	623.1
Washer # 5	675	945	1.083	8,086	0.78	7,641	2.98	0.68	872.3	3820.7	623.1
Washer # 6	675	945	1.083	8,086	0.78	7,641	2.98	0.68	872.3	3820.7	623.1
Washer # 7	675	945	1.083	8,086	0.78	7,641	2.98	0.68	872.3	3820.7	623.1
Washer # 8	900	1,260	1.083	8,086	0.78	10,189	3.97	0.91	1163.1	5094.3	830.8
Washer # 9	200	280	1.083	8,086	0.78	2,264	0.88	0.20	258.5	1132.1	184.6
Washer # 10	200	280	1.083	8,086	0.78	2,264	0.88	0.20	258.5	1132.1	184.6
Washer # 11	90	126	1.083	8,086	0.78	1,019	0.40	0.09	116.3	509.4	83.1
Total washer capacity (1,000 lbs-SST/year):						62,150					
Dryers											
Dryer # 1	600	840	0.75	11,680	7.08	9,811	34.73	7.93	1120.0	4905.6	800.0
Dryer # 2	600	840	0.75	11,680	7.08	9,811	34.73	7.93	1120.0	4905.6	800.0
Dryer # 3	400	560	0.75	11,680	7.08	6,541	23.15	5.29	746.7	3270.4	533.3
Dryer # 4	400	560	0.75	11,680	7.08	6,541	23.15	5.29	746.7	3270.4	533.3
Dryer # 5	100	140	0.75	11,680	7.08	1,635	5.79	1.32	186.7	817.6	133.3
Total dryer capacity (1,000 lbs-SST/year):						34,339	Bottleneck for SST				
Wastewater Treatment Plant - Laundering Soiled Shop Towels											
WWTP	2,100	2,940	NA	11,680	0.28	34,339	4.81	1.10			
Fugitive Emissions - Laundering Soiled Shop Towels											
All other processes associated with Soiled Shop Towel laundering operations							21.6	4.9			

Notes

1. Emission factors for washers, dryers, and wastewater treatment plant represent data from an Aramark facility in Terre Haute, IN on July 18, 2015 for laundering soiled shop towels including a safety factor of 25%.
2. All shop towels are dried. The maximum number of shop towels that can be processed is limited by the capacity of the dryers.
3. Aramark is electing this facility-wide limit on Soiled Shop Towel processing to remain below the major source threshold of 100 TPY VOC, and 10 TPY for any single HAP (tetrachloroethylene).
4. All other processes associated with SST laundering operations includes (but is not limited to) fugitive VOC emissions from unloading washers, pretreatment of wastewater, wastewater transport through floor trenches, etc.). Indiana Department of Environmental Management determined these emissions are equivalent to approximately 16% of the washer/dryer process emissions based on a review of all existing industrial laundry stack test data, and specifically observations made during stack testing conducted at the G&K Services facility in Manchester, NH (conducted by TRC) on May 22, 2009 and Coyne Textile Services facility in New Bedford, MA (conducted by AECOM) on June 8, 2010. Taken from permit number F097-33212-00687, issued 1/14/2014.

Table 5
Hazardous Air Pollutant Emissions from Shop Towel Laundering
Vestis Services, LLC
Decatur, AL

Facility-wide unrestricted pounds of soiled shop towels (lb SST/year) = **34,339,200**

HAP	CAS #	Washer EF (lb/lb)	Dryer EF (lb/lb)	WWTP EF (lb/lb)	Other Fug EF (lb/lb)	Facility-wide EF (lb/lb)	Washer Unrestricted PTE (TPY)	Dryer Unrestricted PTE (TPY)	WWTP Unrestricted PTE (TPY)	Other Fug Unrestricted PTE (TPY)	Facility-wide Unrestricted PTE (TPY)
methanol	67-56-1	4.49E-07	4.76E-06	-	8.34E-07	6.04E-06	7.71E-03	0.08	-	1.43E-02	0.10
hexane	110-54-3	2.39E-08	-	-	3.82E-09	2.77E-08	4.10E-04	-	-	6.56E-05	4.76E-04
2-butanone	78-93-3	9.11E-08	-	-	1.46E-08	1.06E-07	1.56E-03	-	-	2.51E-04	1.81E-03
chloroform	67-66-3	2.20E-07	6.75E-06	1.83E-06	1.12E-06	9.92E-06	3.78E-03	0.12	3.14E-02	1.92E-02	0.17
isooctane	540-84-1	3.65E-07	-	-	5.84E-08	4.23E-07	6.27E-03	-	-	1.00E-03	7.27E-03
trichloroethylene	79-01-6	1.39E-06	-	-	2.22E-07	1.61E-06	2.39E-02	-	-	3.81E-03	2.77E-02
toluene	108-88-3	1.26E-05	2.65E-06	8.55E-07	2.44E-06	1.85E-05	0.22	0.05	1.47E-02	0.04	0.32
tetrachloroethylene	127-18-4	1.17E-04	8.35E-05	8.33E-07	3.21E-05	2.33E-04	2.01	1.43	1.43E-02	0.55	4.01
ethylbenzene	100-41-4	9.79E-06	2.55E-06	7.99E-07	1.97E-06	1.51E-05	0.17	0.04	1.37E-02	3.38E-02	0.26
m-p-xylene	179601-23-1	2.81E-05	1.19E-05	8.53E-07	6.40E-06	4.73E-05	0.48	0.20	1.46E-02	0.11	0.81
o-xylene	95-47-6	1.25E-05	6.15E-06	9.48E-07	2.98E-06	2.26E-05	0.21	0.11	1.63E-02	0.05	0.39
Total HAPs (TPY):							3.13	2.03	0.11	0.83	6.10

Facility-wide limited capacity pounds of soiled shop towels (lb SST/year) = **20,000,000**

HAP	CAS #	Washer EF (lb/lb)	Dryer EF (lb/lb)	WWTP EF (lb/lb)	Other Fug EF (lb/lb)	Facility-wide EF (lb/lb)	Washer Restricted PTE (TPY)	Dryer Restricted PTE (TPY)	WWTP Restricted PTE (TPY)	Other Fug Restricted PTE (TPY)	Facility-wide Restricted PTE (TPY)
methanol	67-56-1	4.49E-07	4.76E-06	-	8.34E-07	6.04E-06	4.49E-03	0.05	-	8.34E-03	0.06
hexane	110-54-3	2.39E-08	-	-	3.82E-09	2.77E-08	2.39E-04	-	-	3.82E-05	2.77E-04
2-butanone	78-93-3	9.11E-08	-	-	1.46E-08	1.06E-07	9.11E-04	-	-	1.46E-04	1.06E-03
chloroform	67-66-3	2.20E-07	6.75E-06	1.83E-06	1.12E-06	9.92E-06	2.20E-03	0.07	1.83E-02	1.12E-02	0.10
isooctane	540-84-1	3.65E-07	-	-	5.84E-08	4.23E-07	3.65E-03	-	-	5.84E-04	4.23E-03
trichloroethylene	79-01-6	1.39E-06	-	-	2.22E-07	1.61E-06	1.39E-02	-	-	2.22E-03	1.61E-02
toluene	108-88-3	1.26E-05	2.65E-06	8.55E-07	2.44E-06	1.85E-05	0.13	0.03	8.55E-03	0.02	0.19
tetrachloroethylene	127-18-4	1.17E-04	8.35E-05	8.33E-07	3.21E-05	2.33E-04	1.17	0.84	8.33E-03	0.32	2.33
ethylbenzene	100-41-4	9.79E-06	2.55E-06	7.99E-07	1.97E-06	1.51E-05	0.10	0.03	7.99E-03	1.97E-02	0.15
m-p-xylene	179601-23-1	2.81E-05	1.19E-05	8.53E-07	6.40E-06	4.73E-05	0.28	0.12	8.53E-03	0.06	0.47
o-xylene	95-47-6	1.25E-05	6.15E-06	9.48E-07	2.98E-06	2.26E-05	0.13	0.06	9.48E-03	0.03	0.23
Total HAPs (TPY):							1.83	1.18	0.06	0.48	3.55

Notes:

1. Emission factors based on stack testing conducted at the Aramark facility in Terre Haute, IN on July 18, 2015 and includes a 25% safety factor.
2. All other processes associated with SST laundering operations includes (but is not limited to) fugitive VOC emissions from unloading washers, pretreatment of wastewater, wastewater transport through floor trenches, etc.). Indiana Department of Environmental Management determined these emissions are equivalent to approximately 16% of the washer/dryer process emissions based on a review of all existing industrial laundry stack test data, and specifically observations made during stack testing conducted at the G&K Services facility in Manchester, NH (conducted by TRC) on May 22, 2009, and Coyne Textile Services facility in New Bedford, MA (conducted by AECOM) on June 8, 2010. Taken from permit number F097-33212-00687, issued 1/14/2014.

Table 6
Facility-wide PTE Summary
Vestis Services, LLC
Decatur, AL

Emission Unit	Unrestricted Emissions (TPY)										
	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	lead	Total HAPs	Worst Single HAP	
Washers (Shop Towels)	-	-	-	-	-	13.4	-	-	6.10	4.0	tetrachloroethylene
Dryers (Lint + Shop Towels)	10.18	0.61	0.61	-	-	121.6	-	-			
WWTP (Shop Towels)	-	-	-	-	-	4.8	-	-			
All other Shop Towel	-	-	-	-	-	21.6	-	-			
Natural Gas Combustion	0.75	0.19	0.56	0.06	9.8	0.54	8.24	0.0000	0.19	0.18	hexane
Facility Total	10.9	0.80	1.17	0.06	9.8	161.9	8.2	0.0000	6.3	4.0	tetrachloroethylene

Emission Unit	Permit-limited Emissions (TPY)										
	PM	PM ₁₀	PM _{2.5}	SO ₂	NO _x	VOC	CO	lead	Total HAPs	Worst Single HAP	
Washers (Shop Towels)	-	-	-	-	-	7.8	-	-	3.55	2.3	tetrachloroethylene
Dryers (Lint + Shop Towels)	10.18	0.61	0.61	-	-	70.8	-	-			
WWTP (Shop Towels)	-	-	-	-	-	2.8	-	-			
All other Shop Towel	-	-	-	-	-	12.6	-	-			
Natural Gas Combustion	0.75	0.19	0.56	0.06	9.81	0.54	8.24	0.0000	0.19	0.18	hexane
Facility Total	10.9	0.80	1.17	0.06	9.8	94.5	8.2	0.0000	3.74	2.33	tetrachloroethylene