US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

G&K SERVICES

August 15, 2013

VIA UPS DELIVERY

Michael Langman
Air Permits Section (AR-18J)
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

RE: Application for a Part 49 Construction Permit to Modify Emission Sources
G&K Services, Inc., Green Bay, Wisconsin

Dear Mr. Langman:

Enclosed please find an application submitted under the federal minor source new source review program in Indian Country, under provisions of 40 CFR Part 49 for the G&K Services, Inc. (G&K Services) commercial and industrial laundering facility in Green Bay, Wisconsin. G&K Services is proposing to replace certain laundering operations along with other changes to its existing emission sources.

Previously, G&K Services submitted applications for a Part 71 Operation Permit and a Part 49 Construction Permit for this facility on the basis that the facility had recently been made aware that it is located within the limits of the Oneida Tribe of Indians of Wisconsin (Oneida) reservation. Up to this point, the facility has been operating under permits issued by the Wisconsin Department of Natural Resources (WDNR) pursuant to federal authority. The permit issued by the WDNR limits VOC emission rates to no more than 234 tons per year (over each 12-consecutive month period) and HAP emission rates to no more than 9.9 tons of any individual HAP per year and no more than 24.9 tons in total of the combination all HAPs per year. Potential emission rates of other air pollutants are less than the Prevention of Significant Deterioration (PSD) Major Source thresholds without administrative restrictions. With the enclosed application G&K Services seeks to maintain these limitations in any permit that may be issued by the USEPA.

If you have any questions regarding this application, please contact Brian Duffy via phone at (952) 912-5713 or via email at bduffy01@gkservices.com.

Sincerely,

Sara Ethier for Steve Botts

G&K Services, Inc.
Steve Botts
Director of Environmental Management
(952) 912-5765

Enclosures: Part 49 Construction Permit Application

Cc: Genevieve Damico, Doug Krysiak, Andrew Utrie, Lee Joniaux, Janine Wilson, Gene Bagot, Dennis Reynolds, Tim Stuewer, Sara Ethier, Brian Duffy

US EPA ARCHIVE DOCUMENT

Application for Construction Permit Under 40 CFR Part 49

G&K Services, Inc.
Green Bay, Wisconsin

August 2013

US EPA ARCHIVE DOCUMENT

Application for Construction Permit Under 40 CFR Part 49

G&K Services, Inc.

Green Bay, Wisconsin

August 2013

150 North Patrick Blvd, Suite 180, Brookfield, WI 53045, • 262.879.1212 Phone • 262.879.1220 Fax • www.TRCsolutions.com

US EPA ARCHIVE DOCUMENT

Table of Contents

US EPA ARCHIVE DOCUMENT

List of Tables

List of Appendices

US EPA ARCHIVE DOCUMENT

Section 1
Introduction

G&K Services, Inc. (G&K Services) operates a commercial/industrial laundry in Green Bay, Wisconsin, that launders (cleans and reconditions) soiled industrial towels, coveralls, uniforms, and other textiles for industrial customers. The facility currently operates under provisions of Operation Permit No. 405028690-P13, issued by the Wisconsin Department of Natural Resources (WDNR), which covers the entire facility. Voluntary restrictions in this permit limit Volatile Organic Compound (VOC) emissions facility-wide to no more than 39,000 pounds per month, averaged over each consecutive 12-month period (234 tons per year). Additionally, the permit limits total monthly individual federal Hazardous Air Pollutant (HAP) emissions to no more than 1,650 pounds per month averaged over each consecutive 12-month period (9.9 tons per year), while the total monthly aggregate of federal HAP emissions may not exceed 4,150 pounds per month, averaged over each consecutive 12-month period (24.9 tons per year). The WDNR permit also restricts particulate matter emission rates to minor source levels.

In June 2013, G &K Services submitted applications to the United States Environmental Protection Agency (USEPA) Region V for both an Operating Permit under 40 CFR Part 71 and a Construction Permit under 40 CFR Part 49 for its existing operations. These applications were submitted on the basis that the facility was recently made aware that it is located within the limits of the Oneida Tribe of Indians of Wisconsin (Oneida) Reservation. In the June 2013 Parts 71 and 49 applications, G&K Services sought to maintain the annual restriction on VOC emissions to no more than 234 tons per year and HAP emission rates to no more than 9.9 tons of any individual HAP per year and no more than 24.9 tons in total of the combination all HAPs per year in any permit that may be issued by the USEPA. G&K Services also sought to maintain its status as a minor source under the PSD program by appropriate limits on emissions of other air pollutants.

G&K Services is planning to replace certain washers, dryers and a Steam Tunnel, and is now submitting an application for a Construction Permit under the minor New Source Review program in 40 CFR Part 49, for sources located in Indian Country to replace and install certain new equipment and to undertake other projects as described below. With the current application, G&K Services seeks to maintain the restrictions on its allowed annual emission rates as proposed in June 2013, and thereby maintain its permitted potential emission rates to less than the PSD Major Source thresholds.

US EPA ARCHIVE DOCUMENT

With the current application, G&K Services is proposing to install the following equipment:

- 1 - Jensen L-Tron® Washer/Extractor Model: 450 OPT-H
- 2 – Jensen L-Tron® DTX 800 Lb. Dryers (2.5 Million Btu per hour, each)
- 1 – WashTech DR-80 Dryer (250,000 Btu per hour)
- 1 – Leonard Automatics Model VPT24 Steam Tunnel (1.5 MMBtu per hour)

This equipment will replace the following existing equipment:

- 1 - Braun 450 Washer
- 2 - 800 pound American Dryers (3.5 Million Btu per hour, each)
- 1 - Cissell 110 pound Pony Dryer (250,000 Btu/hour)
- 1 - Leonard 24 foot Steam Tunnel (800,000 Btu per hour)

In addition, G&K Services will undertake the following ongoing programs:

1. water conservation,
2. energy efficiency, and
3. chemical management with specific emphasis on wash formulations

These programs may shorten processing times of all washers and dryers, with resulting increases in hourly emission rates but will not change the emission rate per unit of throughput which is the basis of our proposed compliance demonstration. These projects are not completely defined, and it is not possible to define the specific activities as they will evolve over time. Such projects tend to be inter-related. For example, a change in wash chemical formulation may allow a resulting reduction in water use. Less water, also results in less energy input by reducing the volume of water to be heated. Some of these efforts will be driven by environmental regulations, generally related to residual chemicals in wastewater discharges. Other efforts will be voluntary related to business performance. Although these changes do not necessarily trigger permitting obligations, G&K is including them here for completeness purposes. Regardless, as noted above, such changes do not alter the emission rate per unit of throughput and facility-wide emission rates will continue to be limited to minor source levels under the Prevention of Significant Deterioration (PSD) rules.

To the extent that it may be allowed, G&K Services also seeks approval to replace any of its equipment at this facility with similar or comparable equipment, or to add equipment, provided that it can continue to demonstrate that emission rates remain less than PSD Major Source thresholds. Annual emission rates and the proposed compliance demonstration method are

based on the annual throughput of soiled print and shop towels and the corresponding emission rate per unit of throughput for these textiles. The processing equipment used, and the number or size of such equipment are not factors in either the actual emission rate or in the proposed compliance demonstration method.

Emission Sources

The Washers and Dryers, and other ancillary laundering operations are emissions sources due to the types of soils retained in printer towels and shop towels. Soiled towels used to clean printing presses, wood finishing operations, or in automotive or other shop areas are sent to G&K Services for cleaning and reconditioning. These soiled towels may contain residual materials, that may include water-based and organic material based inks, cleaning solvents, greases and oils. G&K Services has implemented procedures which prohibit the transportation of soiled towels containing free liquids.

The soiled industrial towels are counted/sorted and reconditioned (laundered) using a conventional industrial (aqueous) washing step and a drying step. It is anticipated that there are VOC emissions from the counting/sorting operations as solvents contained within the soiled towels volatilize when removed from their closed container. These "fugitive" emissions are accounted for in the overall emission factor used by the plant.

The washing process consists of loading soiled textiles into an industrial washer, adding water, detergent, and other cleaning additives. The soiled textiles proceed through a washing stage, wash water draining stage, rinsing stage, and final draining stage. At the washers, volatile organics entering the system (via the original unlaundered soiled textiles or via the washing additives) either remain in the textiles following washing, are dissolved in the aqueous discharges, or are emitted as either stack or indoor fugitive emissions. The washed textiles are then held and/or transferred to an industrial dryer. Volatile organics that remain in the washed textiles are released in the drying step, or remain with the clean dry textiles. Additional fugitive emissions are released at the wastewater pretreatment system as a result of the fraction of organic compounds that remains with the aqueous phase.

In addition to the type and quantity of soils, short-term emission rates (hourly, daily) from Washers and Dryers are impacted by the size of the load and the cycle time per load. Each washer and dryer has a nominal load capacity expressed in pounds on a clean dry weight (CDW) basis. Clean Dry Weight is the weight of the textile after washing and drying, and is the industry convention for denoting the capacity of the machines. Soiled weights can be significantly greater. G&K Services has developed emission factors on the basis of soiled weights which are generally easier to measure and are not dependent on cycle time of the laundering equipment.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Cycle Time is determined as the period beginning with the start of the loading process for a washer or dryer and lasting until the start of the next loading sequence. For washers a cycle will include loading a machine with soiled print or shop towels, an operating cycle, unloading the machine, and preparing the machine to receive the next load. A wash cycle may include the following activities: filling the machine with water, addition of wash chemicals, draining the machine, rinsing, and agitating the load. Each of these operations may occur more than once during an operating cycle. A drying cycle will include loading a machine, an operating cycle, unloading the machine, and preparing the machine to receive the next load. An operating cycle may include heating, cooling, and holding of textiles prior to unloading. Cycle times and potential hourly emission rates are described for purposes of calculating the potential to emit of the equipment but are not factors in determining the actual annual emissions and are not a factor in the proposed compliance demonstration method.

Ancillary operations include a boiler to provide steam that is supplied to washers and presses, a Steam Tunnel that is used to remove wrinkles from hanging garments, a wastewater pretreatment system, a convenience hot water heater, and convenience space heaters. Table 1 provides a list of emission sources at this facility, including the proposed replacement equipment.

Table 1.1: Emission Sources for the Facility as Proposed [1]

DNR Process ID	EPA Process Group	Equipment	Burner Rating (Btu/hr)
P08	P03	Dryer - Challenge #3	2,750,000
P09	P03	Dryer - Challenge #4	2,750,000
P30	P03	Jensen L-Tron Dryer #1 (New) proposed to replace American #1	2,500,000
P31	P03	Jensen L-Tron Dryer #2 (New) proposed to replace American #2	2,500,000
P05	P03	WashTech DR-80 Dryer (New) proposed to replace Cissell #1	250,000
P06	P03	Dryer- Cissell #2	250,000
P36	P01	Washer - Jensen #3	NA
P40	P01	Washer - Unimac #1	NA
P37	P01	Jensen L-Tron® 450 OPT-H (New) proposed to replace Braun #4	NA
P38	P01	Washer - Ellis Split Pocket #5	NA
P39	P01	Washer - Ellis Split Pocket #6	NA
P34	P02	Washer - Jensen #1	NA
P35	P02	Washer - Jensen #2	NA
P25	P02	Washer - Unimac #2	NA
P18	P02	Washer- Unimac #3	NA
B01	B01	Boiler #1	10,461,000

Table 1.1: Emission Sources for the Facility as Proposed [1]

DNR Process ID	EPA Process Group	Equipment	Burner Rating (Btu/hr)
NA	Insignificant	Leonard Automatics Model VPT24 Steam Tunnel #1	1,500,000
NA	Insignificant	Gas Fired Unit Heater #1	150,000
NA	Insignificant	Gas Fired Unit Heater #2	150,000
NA	Insignificant	Gas Fired Unit Heater #3	75,000
NA	Insignificant	Gas Fired Unit Heater #4	165,000
NA	Insignificant	Gas Fired Unit Heater #5	165,000
NA	Insignificant	Gas Fired Unit Heater #6	105,000
NA	Insignificant	Gas Fired Unit Heater #7	105,000
NA	Insignificant	Gas Fired Unit Heater #8	1,255,000
NA	Insignificant	HVAC Units Roof #1	250,000
NA	Insignificant	HVAC Units Roof #2	250,000
NA	Insignificant	HVAC Units Roof #3	205,000
NA	Insignificant	MUA Units Roof #1	3,575,000
NA	Insignificant	MUA Units Roof #2	3,575,000
NA	Insignificant	MUA Units Roof #3	865,000
NA	Insignificant	Textile Storage, Staging, Sorting and Counting Areas	NA
NA	Insignificant	Convenience Water Heater #1	38,000
NA	Insignificant	EQ Tank	NA
NA	Insignificant	Continuous Roll Towel Machine	NA
NA	Insignificant	Boiler, Turbine, and HVAC System Maintenance	NA
NA	Insignificant	Demineralization and Oxygen Scavenging of Water for Boilers	NA
NA	Insignificant	Fire Control Equipment	NA
NA	Insignificant	Fork trucks for material transport	NA
NA	Insignificant	Janitorial Activities	NA
NA	Insignificant	Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.)	NA
NA	Insignificant	Office Activities	NA
NA	Insignificant	Pollution Control Equipment Maintenance	NA
NA	Insignificant	Purging of Natural Gas Lines	NA
NA	Insignificant	Sanitary Sewer and Plumbing Venting	NA
NA	Insignificant	Wastewater Treatment/Handling System	NA

Note 1: G&K Services is seeking approval to modify or replace all existing equipment with comparable units

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Section 2
Emission Sources

2.1 Replacement Emission Sources

G&K Services has identified specific equipment that it may install as replacement equipment for existing units as discussed below. As noted previously, to the extent that it may be allowed, G&K Services also seeks approval to modify and/or replace any of its other operations at this facility, or to add equipment, provided that it can continue to demonstrate that emission rates remain less than PSD Major Source thresholds. Again, G&K's proposed compliance demonstration method is based on pounds of material (laundry) throughput and therefore is not dependent on specific equipment or processing rates.

Equipment cycle times are described below for purposes of calculating the potential to emit of the equipment.

2.1.1 1 - Jensen L-Tron® Washer/Extractor Model: 450 OPT-H

The Jensen L-Tron® Washer/Extractor will replace the existing Braun Washer. The existing Braun washer is not vented and the Jensen L-Tron Washer/Extractor will likewise not be vented and therefore is restricted in its use, such that it may not be used to process print towels (due to plant requirements for worker exposure). It is rated for up to 450 pounds as Clean Dry Weight per Load; up to 675 pounds per Load (soiled weight basis) over a 30 minute cycle time. Emissions will consist primarily of organic compounds released from the textiles, with only an insignificant contribution resulting from compounds in the wash formula.

2.1.2 2 – Jensen L-Tron® DTX 800 Lb. Dryers (2.5 MMBtu per hour, each)

The two Jensen L-Tron® DTX 800 dryers will replace the two American Dryers, which are the largest dryers operated at the plant. The new Jensen Dryers, like the American Dryers will be used to dry print and shop towels, as well as other textiles. Each new dryer has a 2.5 million Btu per hour natural gas fired heater (the existing American Dryers each have a 3.5 million Btu per hour heating system) and a 12,000 actual cubic foot per minute exhaust. Dryer capacity is up to 800 pounds as Clean Dry Weight per Load; up to 1,300 pounds of soiled print towels per load over a 30 minute cycle time or 1,200 pounds of soiled shop towels per load over a 30 minute cycle time. The exhaust gas temperature from each dryer is estimated to average 120 degree Fahrenheit.

US EPA ARCHIVE DOCUMENT

2.1.3 1 – WashTech DR-80 (250,000 Btu per hour)

The WashTech DR-80 Dryer will replace the Cissell #1 dryer that was installed in 1994. The load capacity of the new dryer will be 100 pounds with a cycle time of no less than 20 minutes compared the 110 pound capacity and cycle time of 30 minutes for the existing dryer. The heat input rating is 250,000 Btu per hour, identical to the existing Cissell #1 dryer.

2.1.4 1 – Leonard Automatics Model VPT24 Steam Tunnel (1.5 MMBtu per hour)

A new Steam Tunnel will replace the existing unit. The heat input rating of the new unit is 1.5 million Btu per hour natural gas fired unit compared with 800,000 Btu per hour of the existing unit. Garments are hung onto a conveyor system and transported through the enclosure of the Steam Tunnel. Steam is generated at the burners and is applied to the garments as they travel through the system. Filtration of lint is incorporated into the steam tunnel to keep blowers and heating systems clean. .

2.2 Emission Sources following implementation of the Project

The significant emission sources at the G&K Services facility will consist of the following:

2.2.1 Boiler B01, Stack S01 – 10.46 MMBtu/hr Natural Gas-fired Boiler

The existing boiler is a Cleaver Brooks Model CB293X-250 that was installed with the original construction of the plant in 1982. It is capable of firing only natural gas and it will not be physically modified.

2.2.2 Process P01 – Industrial Washers, Indoor-vented

Industrial Washers that are not direct vented to the outside may not be used to launder printer towels due to the potential for worker exposure to solvents that may be contained in the soiled towels. They may however be used to launder shop towels and other textiles such as garments, mats, and mops. Following is a list of Washers that do not vent to the outside and therefore may not be used to launder soiled printer towels:

Table 2.1 Industrial Washers, Indoor-Vented, as Proposed [1]

Equipment	Model/Type	Serial Number
Washer – Jensen #3	415	415400500697
Washer – Unimac #1	UW125PVQU20001	1096090582
Jensen L-Tron® 450 OPT-H (New)		
Washer - Ellis Split Pocket #5	Z4723	684
Washer - Ellis Split Pocket #6	Z4723	721

Note 1: G&K Services is seeking approval to modify or replace all existing equipment with comparable units. G&K's proposed compliance demonstration method is based on pounds of material (laundry) throughput and therefore is not dependent on specific equipment or processing rates.

US EPA ARCHIVE DOCUMENT

2.2.3 Process P02 – Industrial Washers, Stack-vented

Industrial Washers that are direct vented to the outside may be used to launder printer towels in addition to being available to launder shop towels and other textiles such as garments, mats and mops. Following is a list of Washers to be operated at the facility that will vent to the outside and therefore may be used to launder soiled printer towels:

Table 2.2 Industrial Washers, Stack-Vented [1]

Equipment	Model/Type	Serial Number
Washer – Jensen #1	415	C415112025-0211
Washer – Jensen #2	415	415400490697
Washer – Unimac #2	UW85PVNU20002	0396079170
Washer – Unimac #3	UW85PS4	21080

Note 1: G&K Services is seeking approval to modify or replace all existing equipment with comparable units. G&K's proposed compliance demonstration method is based on pounds of material (laundry) throughput and therefore is not dependent on specific equipment or processing rates.

2.2.4 Process P03 – Industrial Dryers Burning Natural Gas

All of the dryers vent to the outside and therefore may be used to dry any of the textiles processed at the facility. Following is a list of dryers to be operated at the facility:

Table 2.3: Industrial Dryers Burning Natural Gas as Proposed [1]

Equipment	Model/Type	Serial Number	Burner Rating
Dryer - Challenge #3	CFGS	483273	2,750,000 Btu/hr
Dryer - Challenge #4	CPG 400-3	549528	2,750,000 Btu/hr
Jensen L-Tron Dryer #1 (New)	replaces American #1		2,500,000 Btu/hr
Jensen L-Tron Dryer #2 (New)	replaces American #2		2,500,000 Btu/hr
WashTech DR-80 Dryer (New)	replaces Cissell #1		250,000 Btu/hr
Dryer- Cissell #2	L44CD42G	475610944139	250,000 Btu/hr

Note 1: G&K Services is seeking approval to modify or replace all existing equipment with comparable units. G&K's proposed compliance demonstration method is based on pounds of material (laundry) throughput and therefore is not dependent on specific equipment or processing rates.

2.2.5 Leonard Automatics Model VPT24 Steam Tunnel (1.5 MMBtu per hour)

The proposed Steam Tunnel will include a burner rated at 1.5 million Btu per hour to be fired only with natural gas. Garments are hung onto a conveyor system and transported through the enclosure of the Steam Tunnel. Steam is generated at the burners and is applied to the garments as they travel through the system. The system will be equipped with two exhausts, one at the inlet and another at the outlet

of the steam tunnel to exhaust steam and heat. Filtration of lint is incorporated into the steam tunnel to keep blowers and heating systems clean.

2.2.6 Ancillary Emission Sources

Table 2.4: Ancillary Emission Sources, as Proposed [1]

Equipment Identification	Heat Input Rating (Btu per Hour)
Gas Fired Unit Heater #1	150,000
Gas Fired Unit Heater #2	150,000
Gas Fired Unit Heater #3	75,000
Gas Fired Unit Heater #4	165,000
Gas Fired Unit Heater #5	165,000
Gas Fired Unit Heater #6	105,000
Gas Fired Unit Heater #7	105,000
Gas Fired Unit Heater #8	1,255,000
HVAC Units Roof #1	250,000
HVAC Units Roof #2	250,000
HVAC Units Roof #3	205,000
MUA Units Roof #1	3,575,000
MUA Units Roof #2	3,575,000
MUA Units Roof #3	865,000
Textile/Towel Counter #1	NA
Convenience Water Heater #1	38,000
EQ Tank	NA
Ancillary Existing Insignificant Emission Units:	
Continuous Roll Towel Machine	NA
Textile Storage, Staging, Sorting and Counting Areas	NA
Boiler, Turbine, and HVAC System Maintenance	NA
Demineralization and Oxygen Scavenging of Water for Boilers	NA
Fire Control Equipment	NA
Forktrucks for material transport	NA
Janitorial Activities	NA
Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.)	NA
Office Activities	NA
Pollution Control Equipment Maintenance	NA
Purging of Natural Gas Lines	NA
Sanitary Sewer and Plumbing Venting	NA
Wastewater Treatment/Handling System	NA

Note 1: G&K Services is seeking approval to modify or replace all existing equipment with comparable units, or add insignificant units.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Section 3
Proposed Permit

G&K Services is proposing to maintain the same annual VOC and HAP emission limits that are contained in the Operating Permit issued by the WDNR. These limitations would maintain the facility's status as a synthetic minor source for PSD purposes and as a major source under Title V of the Clean Air Act. The HAP limitations maintain the facility as a minor source of HAP emissions.

G&K Services has included proposed permit language as part of the Part 49 Construction Permit application. This proposed permit language is found in Appendix A. G&K Services has included in this proposed permit the facility-wide restrictions on VOC and HAP emissions as discussed previously. The proposed permit also includes compliance demonstration and record-keeping provisions.

3.1 New Source Performance Standards Applicability

This source is not subject to New Source Performance Standards (NSPS). The industrial boiler was installed in 1982 and has not been modified or reconstructed since, and therefore is exempt from the NSPS for small industrial, commercial, and institutional boilers (40 CFR Part 60, Subpart Dc). Based on size (and for other reasons), the boiler is not subject to the standards under 40 CFR Part 60, Subparts D, Da or Db.

3.2 National Emission Standards for Hazardous Air Pollutants

This source is not subject to National Emission Standards for Hazardous Air Pollutants (NESHAP). The facility is a minor source with respect to hazardous air pollutants and therefore the boiler is exempt from the major source standard for industrial, commercial, and institutional boilers (40 CFR Part 63, Subpart DDDDD). Additionally, the boiler is only capable of firing natural gas, and therefore is exempt from the area source NESHAP for small industrial, commercial, and institutional boilers (40 CFR Part 63, Subpart JJJJJJ).

3.3 Prevention of Significant Deterioration

The facility is a minor source under the Prevention of Significant Deterioration (PSD) rules resulting from enforceable emission limits, and it will maintain this status with the changes that are proposed. Therefore, the project is not subject to the PSD rules in 40 CFR Part 52.21.

3.4 Other Emission Standards

No other federal emission standards have been identified as potentially applicable to the emission sources that are the subject of this application.

3.5 Compliance Monitoring, Recordkeeping and Reporting

Suggested compliance monitoring, recordkeeping and reporting provisions are contained in the draft permit language appended to this document. None of the emission units at the facility are subject to the Compliance Assurance Monitoring (CAM) in 40 CFR Part 64, either because they do not use an emission control device to meet an applicable emission limit or potential pre-control device emissions of the applicable regulated air pollutant are not 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.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Section 4
Emission Rates

4.1 Laundering Operations

There are two categories of soiled industrial towel to which the emission of VOC and HAPs can be attributed: Print Towels (also referred to as "inkers") and Shop Towels. All other commercial laundry is expected not to contain the residual materials (solvents, greases, oils) that contribute to the VOC and HAP emissions.

The VOC emission factors in Table 4.1 are derived from stack testing conducted at the G&K Manchester, NH facility. The HAP emission factors in Table 4.1 are derived from stack testing conducted at the G&K Manchester, NH, and Minneapolis, MN, facilities, and are representative of emissions averaged over monthly and annual time periods. Stack testing performed at the Manchester facility was done under the direction of US EPA Region I. If a pollutant was tested at both facilities, the greatest tested emission rate is listed in Table 4.1. The original stack testing information for VOC emissions was presented "as carbon," and has been converted to "as propane."

Table 4.1: Emission Factors to Determine Potential Annual Emissions for Soiled Print and Shop Towels

Pollutant	CAS No.	Emission Factors [1] (lb/1,000 lb Soiled Towels)	
		Print Towels	Shop Towels
VOCs	N/A	127	12.0
Federal HAPs	N/A	18.8	4.54
1,2-Dichloroethane	107-06-2	0.01	0.04
Cumene	98-82-8	0.48	0.01
Ethylbenzene	100-41-4	1.88	0.07
Methanol	67-56-1	0.56	0.05
Methyl Isobutyl Ketone	108-10-1	0.24	0.06
Methylene Chloride	75-09-2	0.05	0.01
m-Xylene	108-38-3	2.53	0.355
Naphthalene	91-20-3	0.01	0.01
n-Hexane	110-54-3	0.07	0.005
o-Xylene	95-47-6	1.26	0.07
p-Xylene	106-42-3	2.53	0.355
Tetrachloroethene	127-18-4	0.14	1.75
Toluene	108-88-3	8.78	1.55
Trichloroethene	79-01-6	0.25	0.21
Xylene (mixtures and isomers)	1330-20-7	6.32	0.78

Note 1: Representative Monthly and Annual Average Emission Factors

US EPA ARCHIVE DOCUMENT

These emission factors are for the entire wash and dry cycle.

With a safety factor included to address the potential for variability in the short-term (hourly or daily) emission rates, the following emission factors were developed by applying a safety factor of 70 percent for Print Towels and 12.5 percent for Shop Towels to the factors in Table 4.1. The resulting emission factor for VOC emissions from Print Towels coincides with a published trade association factor.

Table 4.2: Short-Term (Hourly/Daily) Emission Factors for Soiled Print and Shop Towels

Pollutant	CAS No.	Emission Factors [1] (lb/1,000 lb Soiled Towels)	
		Print Towels	Shop Towels
VOCs	N/A	216	13.5
Federal HAPs	N/A	31.9	5.11
1,2-Dichloroethane	107-06-2	0.02	0.05
Cumene	98-82-8	0.82	0.01
Ethylbenzene	100-41-4	3.2	0.088
Methanol	67-56-1	0.95	0.06
Methyl Isobutyl Ketone	108-10-1	0.41	0.07
Methylene Chloride	75-09-2	0.09	0.01
m-Xylene	108-38-3	4.3	0.4
Naphthalene	91-20-3	0.02	0.01
n-Hexane	110-54-3	0.12	0.006
o-Xylene	95-47-6	2.1	0.08
p-Xylene	106-42-3	4.3	0.4
Tetrachloroethene	127-18-4	0.24	1.97
Toluene	108-88-3	14.9	1.74
Trichloroethene	79-01-6	0.43	0.24
Xylene (mixtures and isomers)	1330-20-7	10.7	0.88

Note 1: Short-Term (hourly and daily) Emission Factors with safety factors to account for variability in the quantity and characteristics of the soil as well as characteristics of wash formulations.

The emissions can be further broken down into the wash and dry processes for each category as follows:

Table 4.3: Emissions Breakdown for Wash and Dry Cycles

	Wash Cycle	Dry Cycle
Print Towels	95%	5%
Shop Towels	70%	30%

4.2 Combustion Sources

The following emission factors were used to determine potential emission rates from combustion sources:

Table 4.4: Combustion Emission Factors

Combustion Emission Factors (lb/Million cu. ft. Natural Gas)	
CO_2	120,000
Lead	0.0005
N_2O	2.2
PM/$PM_{10}$$PM_{2.5}$	7.6
SO_2	0.6
VOC	5.5
NO_x	170
CO	84
Methane	2.3

Reference: USEPA AP-42 Table 1.4-1 and Table 1.4-2.

4.3 Annual Emission Rates

Emission rates for each of the new processes were estimated based on the emission factors and emissions breakdown described above. Table 4.5 provides a summary of the potential annual emissions from the proposed replacement units without taking into consideration the proposed facility-wide limits on VOC and HAP emissions, determined from the emission factors presented in Table 4.1, the minimum cycle time for each unit, and the load capacity of each unit. Where a pollutant can be emitted from laundering of either shop or print towels, the greater of the two emission rates is shown. Actual emission rates were calculated from emission factors found in Tables 4.1 and 4.4 and actual throughputs of soiled print towels, soiled shop towels, and fuel consumption. For particulate emissions from the dryers, actual emission rates were derived from product mix and emission factors established in consultation with the WDNR.

Table 4.6 provides a comparison of the facility-wide Maximum Potential Emission Rates, the Maximum Allowable Emission Rates to the Actual Emission Rates reported to the WDNR for calendar year 2012. Potential emission rates were based on the maximum of the shop or print towel emissions for the VOC and HAP emissions, maximum heat input rate for combustion emissions and the maximum allowable PM emissions based on the proposed limit of 0.1 grains per standard cubic foot (gr/scf) of exhaust. Maximum allowable emissions were based on the limits established in the proposed permit for VOC and HAPs, PSD major source thresholds for criteria pollutants and greenhouse gases, and the maximum allowable PM emissions based on the limit of 0.1 gr/scf of exhaust.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Table 4.5: Potential Emissions without Administrative Limits (Tons per Year) for Proposed New Equipment [1]

Pollutant	CAS No.	Jensen L-Tron Dryer #1	Jensen L-Tron Dryer #2	WashTech DR-80 Dryer	Jensen L-Tron® 450 OPT-H Washer	Leonard VPT-24 Steam Tunnel	TOTALS
VOCs	N/A	72.31	72.31	8.34	49.67		202.64
Federal HAPs	N/A	14.32	14.32	1.79	18.79		49.22
1,2-Dichloroethane	107-06-2	0.13	0.13	0.02	0.17		0.43
Cumene	98-82-8	0.27	0.27	0.03	0.04		0.62
Ethylbenzene	100-41-4	1.07	1.07	0.12	0.29		2.55
Methanol	67-56-1	0.32	0.32	0.04	0.21		0.88
Methyl Isobutyl Ketone	108-10-1	0.19	0.19	0.02	0.25		0.65
Methylene Chloride	75-09-2	0.03	0.03	0.00	0.04		0.11
m-Xylene	108-38-3	1.44	1.44	0.17	1.47		4.52
Naphthalene	91-20-3	0.03	0.03	0.00	0.04		0.11
n-Hexane	110-54-3	0.04	0.04	0.00	0.02		0.11
o-Xylene	95-47-6	0.72	0.72	0.08	0.29		1.81
p-Xylene	106-42-3	1.44	1.44	0.17	1.47		4.52
Tetrachloroethene	127-18-4	5.52	5.52	0.69	7.24		18.97
Toluene	108-88-3	5.00	5.00	0.61	6.42		17.03
Trichloroethene	79-01-6	0.66	0.66	0.08	0.87		2.28
Xylene (mixtures and isomers)	1330-20-7	3.60	3.60	0.42	3.23		10.84
CO_2		1,288.24	1,288.24	128.82		772.94	3,478.24
lead		0.00	0.00	0.00		0.00	0.00
N_2O		0.02	0.02	0.00		0.01	0.06
$PM/PM_{10}/PM_{2.5}$		41.09	41.09	5.33		25.96	113.47
SO_2		0.01	0.01	0.00		0.00	0.02
Combustion VOC		0.06	0.06	0.01		0.04	0.16
NOx		1.83	1.83	0.18		1.10	4.93
CO		0.90	0.90	0.09		0.54	2.43
methane		0.02	0.02	0.00		0.01	0.07
CO_2-e		1,296.08	1,296.08	129.61		777.65	3,499.40

Note 1: Potential Emission Rates derived from Annual average emission factors and shortest cycle time for each unit at maximum load capacity, assuming laundering of the product with the greatest emission rate for each pollutant.

US EPA ARCHIVE DOCUMENT

Table 4.6: Facility-Wide Comparison of Potential and Allowed Emissions to Actual Emissions: Tons per Year (TPY)

Pollutant	Maximum Potential Emissions (TPY)	Maximum Allowable Emissions (TPY)	2012 Actual Emissions (TPY)
VOCs	2,804.39	234.00	57.11
Federal HAPs	507.68	24.90	9.20
1,2-Dichloroethane	2.22	9.90	0.02
Cumene	9.56	9.90	0.20
Ethylbenzene	38.36	9.90	0.81
Methanol	12.28	9.90	0.25
Methyl Isobutyl Ketone	6.56	9.90	0.12
Methylene Chloride	1.27	9.90	0.02
m-Xylene	59.24	9.90	-
Naphthalene	0.57	9.90	0.01
n-Hexane	1.50	9.90	0.05
o-Xylene	26.38	9.90	-
p-Xylene	59.24	9.90	-
Tetrachloroethene	96.95	9.90	0.56
Toluene	214.86	9.90	4.12
Trichloroethene	12.65	9.90	0.17
Xylene (mixtures and isomers)	144.86	9.90	2.87
CO_2 (1)	17,462.29	-	1,073.82
Pb	0.00	0.59	0.00
N_2O (1)	0.32	-	0.02
$PM/PM_{10}/PM_{2.5}$ (2)	202.25	202.25	2.99
SO_2	0.09	249.00	0.01
NO_x	24.74	249.00	1.79
CO	12.22	249.00	0.88
Methane (1)	0.33	-	0.02
CO_2-e	17,568.56	74,900.00	1,080.44

Note 1: No applicable emission limits are established for the pollutant

Note 2: The $PM/PM_{10}/PM_{2.5}$ potential emission rate is based on the maximum allowable emission rate (0.1 gr/scf for each exhaust point) rather than an estimate based on emission unit capacities and emission factors.

US EPA ARCHIVE DOCUMENT

Section 5
Proposed Limitations

The facility currently operates under provisions of Operation Permit No. 405028690-P13, issued by the WDNR on May 17, 2013, which covers the entire facility. Restrictions in this permit limit VOC emissions facility-wide to no more than 39,000 pounds per month, averaged over each consecutive 12-month period (234 tons per year). Additionally, the permit limits total monthly individual federal HAP emissions to no more than 1,650 pounds per month averaged over each consecutive 12-month period (9.9 tons per year), while the total monthly aggregate of federal HAP emissions may not exceed 4,150 pounds per month, averaged over each consecutive 12-month period (24.9 tons per year). These or very similar restrictions have been in place since the first construction permit was issued to G &K Services (nearly 10 years ago).

Initial construction and operation permits established the facility as a synthetic minor source for PSD purposes and as a major source under Title V of the Clean Air Act. This status was maintained throughout subsequent permit actions. Similarly, emission limits and other provisions have been included in each permit such that the facility has not been subject to New Source Review requirements under the Prevention of Significant Deterioration (PSD) program, and the facility has not been a Major Source of HAP emissions.

G&K Services is proposing the same annual limits on the facility with this permit application as found in the permit issued by the WDNR. These limitations would serve to maintain the facility's status as a synthetic minor source for PSD purposes and as a major source under Title V of the Clean Air Act. The HAP limitations would serve to keep the facility a minor source of HAP emissions.

US EPA ARCHIVE DOCUMENT

Section 6
Potential Emissions

6.1 Potential Emissions

Potential emissions of criteria pollutants and HAPs are shown in Table 6.1 below. PM, PM_{10}, and $PM_{2.5}$ emissions were estimated based on the limit of 0.1 grain per dry standard cubic foot for each stack as established in 40 CFR 49.125(d)(1) and (3) (corrected to 7% oxygen for combustion stacks). While these limits are not applicable to the G&K Services Green Bay facility by virtue of its location outside of USEPA Region 10, G&K Services is electing to limit its emission rate to this standard. NO_x, SO_2, and CO emissions were estimated based on combustion ratings for the natural gas burning sources. Potential emissions of VOC and HAPs are based on the emission factors provided earlier and are shown with the proposed facility-wide limit of 234 TPY and 24.9 TPY, respectively.

Table 6.1: Potential Emissions, (Tons per Year) for the Facility as Proposed

	PM	PM_{10}	$PM_{2.5}$	NO_x	SO_2	CO	VOC	HAP
B01 - Boiler	4.93	4.93	4.93	7.64	0.03	3.77	0.25	0.0
P01, Washers, Indoor Vented	0.00	0.00	0.00	0.00	0.00	0.00	234*	24.9**
P02, Washers, Stack Vented	10.0	10.0	10.0	0.00	0.00	0.00	234*	24.9**
P03, Dryers	157.1	157.1	157.1	8.03	0.03	3.97	234*	24.9**
Steam Tunnel	27.14	27.14	27.14	1.10	0.00	0.54	0.04	0.0
Insignificant Sources	3.07	3.07	3.07	7.98	0.03	3.94	0.26	0.0
TOTAL	**202.2**	**202.2**	**202.2**	**24.8**	**0.1**	**12.2**	**234***	**24.9****

Notes:
*Facility-wide VOC emissions limited to 234 tons per year.
**Facility-wide HAP emissions limited to 24.9 tons per year for total HAPs, 9.9 tons per year for each individual HAP.

6.2 Greenhouse Gas Emissions

Potential greenhouse gas emissions from the combustion of natural gas are given in Table 6.2 below. These emissions were calculated based on emission factors and global warming potentials provided in 40 CFR 98.

Table 6.2: Potential GHG Emissions, (Tons per Year) for the Facility as Proposed

Natural Gas Source	Capacity (MMBtu/hr)	CO_2 (TPY)	CH_4 (TPY)	N_2O (TPY)	CO_2-e (TPY)
B01 - Boiler	10.46	5,390	0.10	0.10	5,423
P03, Dryers	11.00	5,668	0.11	0.10	5,703
Steam Tunnel	1.50	773	0.01	0.01	778
Miscellaneous Combustion (See Table 2.4)	10.93	5,631	0.11	0.10	5,665
TOTAL	**33.89**	**17,462**	**0.33**	**0.32**	**17,569**

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Appendix A
Proposed Permit Language

Applicant Suggested Draft Permit

AIR POLLUTION CONTROL CONSTRUCTION PERMIT

UNDER PROVISIONS OF 40 CFR Part 49

Name of Source:	G&K Services, Inc.
Street Address:	800 Isbell Street Green Bay, Brown County, Wisconsin
Responsible Official, & Title:	Mr. Douglas Krysiak, General Manager

PREAMBLE TO CONSTRUCTION PERMIT

G&K Services is planning to replace certain washers, dryers and a Steam Tunnel, under authority of this Construction Permit, issued under the minor New Source Review program in 40 CFR Part 49, for sources located in Indian Country, to install the following equipment:

- 1 - Jensen L-Tron® Washer/Extractor Model: 450 OPT-H
- 2 - Jensen L-Tron® DTX 800 Lb. Dryers (2.5 MMBtu per hour, each)
- 1 - WashTech DR-80 Dryer (250,000 Btu per hour)
- 1 - Leonard Automatics Model VPT24 Steam Tunnel (1.5 MMBtu per hour)

This equipment, if installed, will replace the following existing equipment:

- 1 - Braun 450 Washer
- 2 - 800 pound American Dryers (3.5 Million Btu per hour, each)
- 1 - Cissell 110 pound Pony Dryer (250,000 Btu/hour)
- 1 - Leonard 24 foot Steam Tunnel (800,000 Btu per hour)

Other existing emission units may be replaced during the term of this permit. In addition, G&K Services will undertake the following ongoing programs:

1. water conservation,
2. energy efficiency, and
3. chemical management with specific emphasis on wash formulations

These programs will cause changes to laundering operations, and may shorten processing times of all washers and dryers, with resulting increases in hourly emission rates but will not change the emission rate per unit of throughput which is the basis of the proposed compliance demonstration. These projects are not completely defined, and it is not possible to define the specific activities as they will evolve over time. Such projects tend to be inter-related. For example, a change in wash chemical formulation may allow a resulting reduction in water use. Less water, also results in less energy input by reducing the volume of water to be heated.

US EPA ARCHIVE DOCUMENT

Although these changes do not necessarily trigger permitting obligations, they are identified in this permit for completeness purposes. Regardless, such changes do not alter the emission rate per unit of throughput and facility-wide emission rates will continue to be limited to minor source levels under the Prevention of Significant Deterioration (PSD) rules.

Process Index:

Boiler B01,– 10.46 MMBtu Natural Gas Fired Boiler. (Existing)

Process P01 – Industrial Washers, Indoor-vented
- Industrial Washing Machine; (Jensen #3) (Existing)
- Industrial Washing Machine; (Unimac #1) (Existing)
- Industrial Washing Machine; (Jensen L-Tron) (New Replacement Unit)
- Industrial Washing Machine; (Ellis #5) (Existing)
- Industrial Washing Machine; (Ellis #6) (Existing)

Process P02, Stack S34 – Industrial Washers, Stack-vented
- Industrial Washing Machine; (Jensen #1) (Existing)
- Industrial Washing Machine; (Jensen #2) (Existing)
- Industrial Washing Machine; (Unimac #2) (Existing)
- Industrial Washing Machine; (Unimac #85) (Existing)

Process P03 – Industrial Dryers Burning Natural Gas
- Industrial Dryer (WashTech); 0.25 MMBtu (New Replacement Unit)
- Industrial Dryer (Cissell #2); 0.275 MMBtu (Existing)
- Industrial Dryer (#3); 2.75 MMBtu (Existing)
- Industrial Dryer (#4); 2.75 MMBtu (Existing)
- Industrial Dryer (Jensen L-Tron #1); 2.5 MMBtu (New Replacement Unit)
- Industrial Dryer (Jensen L-Tron #2); 2.5 MMBtu (New Replacement Unit)

Steam Tunnel; 1.5 MMBtu/hr Natural Gas (New Replacement Unit)

Ancillary Existing Insignificant Emission Units (units that currently exist or may be added or replaced during the term of this permit):

Continuous Roll Towel Machine
Textile Storage, Staging, Sorting and Counting Areas
Convenience Space Heating
Convenience Water Heating
Boiler, Turbine, and HVAC System Maintenance
Demineralization and Oxygen Scavenging of Water for Boilers
Fire Control Equipment.
Forktrucks for material transport
Janitorial Activities
Maintenance of Grounds, Equipment, and Buildings (lawn care, painting, etc.)
Office Activities
Pollution Control Equipment Maintenance.
Purging of Natural Gas Lines

US EPA ARCHIVE DOCUMENT

Sanitary Sewer and Plumbing Venting
Wastewater Treatment/Handling System

Permit Shield. Unless precluded by the Administrator of the US EPA, compliance with all emission limitations in this operation permit is considered to be compliance with all emission limitations established under the federal clean air act, that are applicable to the source if the permit includes the applicable limitation or if the US EPA determines that the emission limitations do not apply. The following emission limitations were reviewed in the analysis and preliminary determination and were determined not to apply to this stationary source:

Applicability of New Source Performance Standards.

This source is not subject to New Source Performance Standards (NSPS). The industrial boiler was installed in 1982 and has not been modified or reconstructed since, and therefore is exempt from the NSPS for small industrial, commercial, and institutional boilers (40 CFR Part 60, Subpart Dc). Based on size (and for other reasons), the boiler is not subject to the standards under 40 CFR Part 60, Subparts D, Da or Db.

Applicability of National Emission Standards for Hazardous Air Pollutants.

This source is not subject to National Emission Standards for Hazardous Air Pollutants (NESHAP). The facility is a minor source with respect to hazardous air pollutants and therefore the boiler is exempt from the major source standard for industrial, commercial, and institutional boilers (40 CFR Part 63, Subpart DDDDD). Additionally, the boiler is only capable of firing natural gas, and therefore is exempt from the area source NESHAP for small industrial, commercial, and institutional boilers (40 CFR Part 63, Subpart JJJJJJ).

TERMS:

Soiled print towels ("inkers") include towels from printers, wood working/finishing facilities and other operations which return VOC laden towels.

Soiled shop towels include towels from automotive shops and other similar operations which return oil/grease laden towels.

US EPA ARCHIVE DOCUMENT

A. Conditions Applicable to the Entire Facility.

1. Facility-Wide VOC Synthetic Minor Limitations.

a. Limitations:

(1) The total monthly VOC emissions from industrial laundry operations may not exceed 234 tons of VOC during any 12 consecutive calendar month period as calculated below..

b. Compliance Demonstration:

(1) The permittee shall use the following equations to calculate VOC emissions from the facility within 30 days following the end of each calendar month:

(a) To calculate monthly VOC emissions, the permittee shall use Equation 1:

$$E_M = \sum_{i=1}^{n} U_i \times VOC_{ef} / 2{,}000 \quad \text{(Equation 1)}$$

Where:
E_M is the total monthly VOC emissions from industrial laundry operations, in tons;
U_i is the total mass of soiled print or shop towels processed by the facility, in 1,000 pounds;
VOC_{ef} is the VOC emission factor for soiled towels processed by the facility, in pounds of VOC per 1,000 pounds of soiled print towels or soiled shop towels, as applicable (for Print Towels ("Inkers") VOC_{ef} = 127 pounds of VOC per 1,000 pounds of soiled inkers; and for Shop Towels, VOC_{ef} = 12 pounds of VOC per 1,000 pounds of soiled shop towels)
n is the total number of categories of soiled materials.

(b) The permittee shall calculate the VOC emissions during each 12 consecutive calendar month period using the following equation:

$$E_T = \sum_{i=1}^{12} E_{Mi} \quad \text{(Equation 2)}$$

Where:
E_T is the total emission of all VOCs during the previous 12 consecutive calendar months, in tons; and
E_{Mi} is the total VOC emissions during each of the previous 12 consecutive calendar months, in tons, as calculated using Equation 1.

c. Recordkeeping:

(1) The facility shall develop guidelines and procedures which categorize the types of materials being laundered and which notes the categories into which the materials should be assigned (e.g. shop towels, print towels (inkers), other fabrics/items containing VOCs, non-VOC containing items).

(2) The permittee shall keep the following records:
- (a) The total mass of soiled towels processed by the facility per month sorted by category (printer towels, shop towels, other), in 1,000 pounds;
- (b) The total mass of VOC emitted during each month, in tons;
- (c) The total mass of VOC emitted, during the previous 12 consecutive months, in tons; and
- (d) Documentation of the source and development of any VOC emission factor used.

2. Federal Hazardous Air Pollutants (Federal HAPs) Limitations.

a. Limitations:

(1) The total monthly individual federal HAP emissions from laundry operations may not exceed 9.9 tons during any 12 consecutive calendar month period as calculated below.

(2) The total monthly aggregate of federal HAP emissions from laundry operations may not 24.9 tons during any 12 consecutive calendar month period as calculated below.

US EPA ARCHIVE DOCUMENT

b. Compliance Demonstration:

(1) The permittee shall use the following equations to calculate Federal HAP emissions from the facility within 30 days following the end of each month:

(a) To calculate monthly Federal HAP emissions, the permittee shall use Equation 3:

$$E_i = \sum_{i=1}^{n} U_i \cdot HAP_{ef} / 2{,}000 \quad \text{(Equation 3)}$$

Where:
E_i is the monthly emissions of an individual Federal HAP from industrial laundry operations, in tons;
U_i is the total mass of soiled print or shop towels processed by the facility, in 1,000 pounds; and
HAP_{ef} is the federal HAP emission factor for soiled towels processed by the facility, in pounds of an individual HAP per 1,000 pounds of soiled print towels or soiled shop towels, as applicable (see table of HAP EFs below); and
n is the total number of categories of soiled materials.

Pollutant	CAS No.	HAP_{ef} Emission Factors (lb/1,000 lb Soiled Towels)	
		Print Towels (Inkers)	Shop Towels
Federal HAPs	NA	18.8	4.54
1,2-Dichloroethane	107-06-2	0.01	0.04
Cumene	98-82-8	0.48	0.01
Ethylbenzene	100-41-4	1.88	0.07
Methanol	67-56-1	0.56	0.05
Methyl Isobutyl Ketone	108-10-1	0.24	0.06
Methylene Chloride	75-09-2	0.05	0.01
m-Xylene	108-38-3	2.53	0.355
Naphthalene	91-20-3	0.01	0.01
n-Hexane	110-54-3	0.07	0.005
o-Xylene	95-47-6	1.26	0.07
p-Xylene	106-42-3	2.53	0.355
Tetrachloroethene	127-18-4	0.14	1.75
Toluene	108-88-3	8.78	1.55
Trichloroethene	79-01-6	0.25	0.21
Xylene (mixtures and isomers)	1330-20-7	6.32	0.78

(b) To calculate the aggregate of individual monthly Federal HAP emissions, the permittee shall use Equation 4:

$$E_M = \sum_{i=1}^{n} E_i \quad \text{(Equation 4)}$$

Where:
E_M is the monthly aggregate of federal HAP emissions from industrial laundry operations, in tons;
E_i is the monthly emissions of an individual federal HAP, calculated using Equation 3; and
n is the total number of federal HAPs emitted by the industrial laundry operations.

(c) The permittee shall calculate the monthly emissions of federal HAP averaged over each 12 consecutive calendar month period from the use of federal HAP-containing materials using the following equation:

$$E_T = \sum_{i=1}^{12} E_{Mi} \quad \text{(Equation 5)}$$

Where:
E_T is the total emissions of all federal HAPs or an individual federal HAP during the previous 12 consecutive months, in tons.
E_{Mi} is the total of all federal HAP emissions or an individual federal HAP during the previous 12 consecutive calendar months, in tons, as calculated using Equation 4.

US EPA ARCHIVE DOCUMENT

c. Recordkeeping:

(1) The permittee shall keep the following records:

(a) The total mass of soiled towels processed by the facility per month sorted by category (printer towels, shop towels, other), in 1,000 pounds;

(b) The total mass of each individual Federal HAP emitted during each month, in tons;

(c) The total mass of each individual Federal HAP emitted during the previous 12 consecutive months, in tons;

(d) The total mass of all Federal HAPs combined emitted during the previous 12 consecutive months, in tons; and

(e) Documentation of the source and development of any federal HAP emission factor used.

d. Equipment Replacement and Modification.

(1) The permittee shall be allowed to replace existing laundry equipment (i.e., washers, dryers, steam tunnels, boilers, etc.) with similar equipment without first obtaining a construction permit provided that the Facility-wide Limits set to keep the facility's status as a Minor Source for PSD are maintained.

(2) The permittee shall be allowed to make physical changes and change the method of operation of existing or replacement laundry equipment (i.e., washers, dryers, steam tunnels, boilers, etc.) without first obtaining a construction permit provided that the Facility-wide Limits set to keep the facility's status as a Minor Source for PSD are maintained.

US EPA ARCHIVE DOCUMENT

B. Process P02 – Industrial Washers, Stack-Vented

NOTE: Includes counting/sorting emissions associated with these operations.

Pollutant: 1. Particulate Matter Emissions

a. Limitations:

Particulate matter emissions from each process stack must not exceed an average of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot) during any three-hour period. (Elective restriction)

b. Compliance Demonstration:	**c. Test Methods:**
Emissions are expected to be trivial and therefore, no compliance demonstration procedures are proposed.	(1) Reference Test Method for Particulate Matter Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method 5, 5A, 5B, 5D, 5E, 5F, 5G, 5H or shall be used to demonstrate compliance.

C. Process P03 – Industrial Dryers Burning Natural Gas

Pollutant: 1. Particulate Matter Emissions

a. Limitations:

(1) Particulate matter emissions from a combustion source stack (except for wood-fired boilers) must not exceed an average of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot), corrected to seven percent oxygen, during any three-hour period. (Elective restriction)

(2) Particulate matter emissions from each dryer vent must not exceed an average of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot) during any three-hour period. (Elective restriction)

b. Compliance Demonstration:	**c. Test Methods, and Recordkeeping:**
(1) Lint filters shall be in line and shall be operated at all times when the process is in operation. **(2)** These dryers may only be fired using natural gas.	**(1)** Reference Test Method for Particulate Matter Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method 5, 5A, 5B, 5D, 5E, 5F, 5G, 5H or shall be used to demonstrate compliance. **(2)** The facility shall maintain daily records of visual inspection of the lint coup and shall note the date when the lint coup collection fabric is replaced.

US EPA ARCHIVE DOCUMENT

D. Boiler B01 – 10.46 MMBtu Natural Gas Fired Boiler – installed in 1982.

Pollutant: 1. Particulate Matter Emissions

a. Limitations:

(1) Particulate matter emissions from a combustion source stack (except for wood-fired boilers) must not exceed an average of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot), corrected to seven percent oxygen, during any three-hour period. (Elective restriction)

b. Compliance Demonstration:	c. Test Methods:
(1) This boiler may only be fired using natural gas.	(1) Reference Test Method for Particulate Matter Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method 5, 5A, 5B, 5D, 5E, 5F, 5G, 5H or 17 shall be used to demonstrate compliance.

E. Process Vents (Vented Washers, Dryers, Steam Tunnels).

Pollutant: 1. Particulate Matter Emissions

a. Limitations:

(1) Particulate matter emissions from each process vent must not exceed an average of 0.23 grams per dry standard cubic meter (0.1 grains per dry standard cubic foot), during any three-hour period. (Elective restriction)

b. Compliance Demonstration:	c. Test Methods:
(1) Lint filters or other particulate capture systems installed as part of the equipment design shall be operated at all times that each process is in operation.	(1) Reference Test Method for Particulate Matter Emissions: Whenever compliance emission testing is required, the appropriate US EPA Method 5, 5A, 5B, 5D, 5E, 5F, 5G, 5H or 17 shall be used to demonstrate compliance.

F. Compliance Reports/Records.

(1) Every six (6) months the permittee shall submit a monitoring report to the US EPA Air and Radiation Division, which contains the following, as required by this permit: 40 CFR 71.6(a)(3)(iii)(A)
- **(a)** The time periods to be addressed by the submittal are January 1 to June 30 and July 1 to December 31.
- **(b)** The report shall be submitted to the Air and Radiation Division, US EPA, 77 W. Jackson Street, Chicago, IL 60604 by March 1 or September 1 after the end of each reporting period.
- **(c)** All deviations from and violations of applicable requirements shall be clearly identified in the submittal.
- **(d)** Each submittal shall be certified by a responsible official as to the truth, accuracy and completeness of the report.

(2) The permittee shall submit an annual certification of compliance with the requirements of this permit Air and Radiation Division, US EPA, 77 W. Jackson Street, Chicago, IL 60604.
- **(a)** The time period to be addressed by the report is January 1 to December 31 of the preceding year.
- **(b)** The report shall be submitted to US EPA by March 1 after the end of each reporting period.
- **(c)** The information included in the report shall include the following:
  - **(i)** Identification of each permit term or condition that is the basis of the certification;
  - **(ii)** The compliance status of the source with respect to each term or condition identified;
  - **(iii)** Whether compliance was continuous or intermittent;
  - **(iv)** Method(s) used for determining the compliance status, currently and over the previous 12 month period;
  - **(v)** Compliance status with respect to 40 CFR 68 (Accidental Release Prevention) including registration and submission of the risk management plan, as specified in 40 CFR 68.160 and 68.150, respectively, if applicable;
  - **(vi)** Other information required to determine the compliance status of the source, as specified in this permit.
- **(d)** Each report shall be certified by a responsible official as to the truth, accuracy and completeness of the report.

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Appendix B
Emission Calculations

US EPA ARCHIVE DOCUMENT

Process Data

DNR Process ID	EPA Process Group	Equipment	Burner Rating (Btu/hr)	Soiled Weight Print lb/load	Soiled Weight Print Cycle Time (min)	Soiled Weight Shop lb/load	Soiled Weight Shop Cycle Time (min)
P08	P03	Dryer - Challenge #3	2,750,000	650	30	600	30
P09	P03	Dryer - Challenge #4	2,750,000	650	30	600	30
P30	P03	Jensen L-Tron Dryer #1 (New)	2,500,000	1,300	30	1,200	30
P31	P03	Jensen L-Tron Dryer #2 (New)	2,500,000	1,300	30	1,200	30
P05	P03	WashTech DR-80 Dryer (New)	250,000	100	20	100	20
P06	P03	Dryer- Cissell #2	250,000	100	20	100	20
P36	P01	Washer - Jensen #3	NA		40	1,200	30
P40	P01	Washer - Unimac #1	NA		40	188	30
P37	P01	Jensen L-Tron® 450 OPT-H Washer (New)	NA		40	675	30
P38	P01	Washer - Ellis Split Pocket #5	NA		40	1,350	30
P39	P01	Washer - Ellis Split Pocket #6	NA		40	1,350	30
P34	P02	Washer - Jensen #1	NA	1,300	40	1,200	30
P35	P02	Washer - Jensen #2	NA	1,300	40	1,200	30
P25	P02	Washer - Unimac #2	NA	100	40	100	30
P18	P02	Washer 2 Unimac #85	NA	100	40	100	30

EPA Process Groupings:

P01: Washers that are not vented
P02: Washers that are vented
P03: Dryers

US EPA ARCHIVE DOCUMENT

VOC and HAP Emission Factors for Laundering Processes

		Maximum Hourly Emission Factors Emission Factors (lb/1,000 lb Soiled Towel)	
Pollutant	**CAS No.**	**Print Towel**	**Shop Towel**
VOCs	N/A	216	13.5
Federal HAPs	N/A	31.9	5.11
1,2-Dichloroethane	107-06-2	0.02	0.05
Cumene	98-82-8	0.82	0.01
Ethylbenzene	100-41-4	3.2	0.088
Methanol	67-56-1	0.95	0.06
Methyl Isobutyl Ketone	108-10-1	0.41	0.07
Methylene Chloride	75-09-2	0.09	0.01
m-Xylene	108-38-3	4.3	0.4
Naphthalene	91-20-3	0.02	0.01
n-Hexane	110-54-3	0.12	0.006
o-Xylene	95-47-6	2.1	0.08
p-Xylene	106-42-3	4.3	0.4
Tetrachloroethene	127-18-4	0.24	1.97
Toluene	108-88-3	14.9	1.74
Trichloroethene	79-01-6	0.43	0.24
Xylene (mixtures and isomers)	1330-20-7	10.7	0.88

		Maximum Annual Emission Factors Emission Factors (lb/1,000 lb Soiled Towel)	
Pollutant	**CAS No.**	**Print Towel**	**Shop Towel**
VOCs	N/A	127	12
Federal HAPs	N/A	18.8	4.54
1,2-Dichloroethane	107-06-2	0.01	0.04
Cumene	98-82-8	0.48	0.01
Ethylbenzene	100-41-4	1.88	0.07
Methanol	67-56-1	0.56	0.05
Methyl Isobutyl Ketone	108-10-1	0.24	0.06
Methylene Chloride	75-09-2	0.05	0.01
m-Xylene	108-38-3	2.53	0.355
Naphthalene	91-20-3	0.01	0.01
n-Hexane	110-54-3	0.07	0.005
o-Xylene	95-47-6	1.26	0.07
p-Xylene	106-42-3	2.53	0.355
Tetrachloroethene	127-18-4	0.14	1.75
Toluene	108-88-3	8.78	1.55
Trichloroethene	79-01-6	0.25	0.21
Xylene (mixtures and isomers)	1330-20-7	6.32	0.78

Production Rates

DNR Process ID	EPA Process Group	Equipment	Burner Rating	Prints (lb/hr)	Shops (lb/hr)
P08	P03	Dryer - Challenge #3	2,750,000	1,300	1,200
P09	P03	Dryer - Challenge #4	2,750,000	1,300	1,200
P30	P03	Jensen L-Tron Dryer #1 (New)	2,500,000	2,600	2,400
P31	P03	Jensen L-Tron Dryer #2 (New)	2,500,000	2,600	2,400
P05	P03	WashTech DR-80 Dryer (New)	250,000	300	300
P06	P03	Dryer- Cissell #2	250,000	300	300
P36	P01	Washer - Jensen #3	NA	0	2,400
P40	P01	Washer - Unimac #1	NA	0	376
P37	P01	Jensen L-Tron® 450 OPT-H (New)	NA	0	1,350
P38	P01	Washer - Ellis Split Pocket #5	NA	0	2,700
P39	P01	Washer - Ellis Split Pocket #6	NA	0	2,700
P34	P02	Washer - Jensen #1	NA	1,950	2,400
P35	P02	Washer - Jensen #2	NA	1,950	2,400
P25	P02	Washer - Unimac #2	NA	150	200
P18	P02	Washer 2 Unimac #85	NA	150	200

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Dryers P03

Equipment	Burner Rating	Prints (lb/hr)	Shops (lb/hr)	DNR Process ID	EPA Process Group
Dryer - Challenge #3	2,750,000	1,300	1,200	P08	P03
Dryer - Challenge #4	2,750,000	1,300	1,200	P09	P03
Jensen L-Tron Dryer #1 (New)	2,500,000	2,600	2,400	P30	P03
Jensen L-Tron Dryer #2 (New)	2,500,000	2,600	2,400	P31	P03
WashTech DR-80 Dryer (New)	250,000	300	300	P05	P03
Dryer- Cissell #2	250,000	300	300	P06	P03

Laundering Emissions			
Maximum Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	90.72	31.59
Federal HAPs	N/A	13.40	11.96
1,2-Dichloroethane	107-06-2	0.01	0.12
Cumene	98-82-8	0.34	0.02
Ethylbenzene	100-41-4	1.34	0.21
Methanol	67-56-1	0.40	0.14
Methyl Isobutyl Ketone	108-10-1	0.17	0.16
Methylene Chloride	75-09-2	0.04	0.02
m-Xylene	108-38-3	1.81	0.94
Naphthalene	91-20-3	0.01	0.02
n-Hexane	110-54-3	0.05	0.01
o-Xylene	95-47-6	0.88	0.19
p-Xylene	106-42-3	1.81	0.94
Tetrachloroethene	127-18-4	0.10	4.61
Toluene	108-88-3	6.26	4.07
Trichloroethene	79-01-6	0.18	0.56
Xylene (mixtures and isomers)	1330-20-7	4.49	2.06
Combustion Emissions			
CO2		1,294.12	1,294.12
Pb		0.00	0.00
N2O		0.02	0.02
PM/PM10/PM2.5		0.08	0.08
SO2		0.01	0.01
Combustion VOC		0.06	0.06
NOx		1.83	1.83
CO		0.91	0.91
methane		0.02	0.02
CO2-e		1,301.99	1,301.99
Total VOC		90.78	31.65

Laundering Emissions			
Annual (Maximum) Average Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	53.34	28.08
Federal HAPs	N/A	7.90	10.62
1,2-Dichloroethane	107-06-2	0.00	0.09
Cumene	98-82-8	0.20	0.02
Ethylbenzene	100-41-4	0.79	0.16
Methanol	67-56-1	0.24	0.12
Methyl Isobutyl Ketone	108-10-1	0.10	0.14
Methylene Chloride	75-09-2	0.02	0.02
m-Xylene	108-38-3	1.06	0.83
Naphthalene	91-20-3	0.00	0.02
n-Hexane	110-54-3	0.03	0.01
o-Xylene	95-47-6	0.53	0.16
p-Xylene	106-42-3	1.06	0.83
Tetrachloroethene	127-18-4	0.06	4.10
Toluene	108-88-3	3.69	3.63
Trichloroethene	79-01-6	0.11	0.49
Xylene (mixtures and isomers)	1330-20-7	2.65	1.83
Combustion Emissions			
CO2		1,294.12	1,294.12
Pb		0.00	0.00
N2O		0.02	0.02
PM/PM10/PM2.5		0.08	0.08
SO2		0.01	0.01
Combustion VOC		0.06	0.06
NOx		1.83	1.83
CO		0.91	0.91
methane		0.02	0.02
CO2-e		1,301.99	1,301.99
Total VOC		53.40	28.14

Theoretical Emission Rates	
Tons per Year	
Prints	Shops
233.63	122.99
34.58	46.53
0.02	0.41
0.88	0.10
3.46	0.72
1.03	0.51
0.44	0.61
0.09	0.10
4.65	3.64
0.02	0.10
0.13	0.05
2.32	0.72
4.65	3.64
0.26	17.94
16.15	15.89
0.46	2.15
11.63	7.99
5,668.24	5,668.24
0.00	0.00
0.10	0.10
0.36	0.36
0.03	0.03
0.26	0.26
8.03	8.03
3.97	3.97
0.11	0.11
5,702.73	5,702.73
233.89	123.25

Maximum Emission Rates
Tons per Year
233.63
46.53
0.41
0.88
3.46
1.03
0.61
0.10
4.65
0.10
0.13
2.32
4.65
17.94
16.15
2.15
11.63
5,668.24
0.00
0.10
0.36
0.03
0.26
8.03
3.97
0.11
5,702.73
233.89

US EPA ARCHIVE DOCUMENT

Washers P01 (Indoor-vented)

Equipment	Prints (lb/hr)	Shops (lb/hr)	DNR Process ID	EPA Process Group
Washer - Jensen #3	0	2,400	P36	P01
Washer - Unimac #1	0	376	P40	P01
Jensen L-Tron® 450 OPT-H (New)	0	1,350	P37	P01
Washer - Ellis Split Pocket #5	0	2,700	P38	P01
Washer - Ellis Split Pocket #6	0	2,700	P39	P01

Laundering Emissions

Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	-	90.02
Federal HAPs	N/A	-	34.07
1,2-Dichloroethane	107-06-2	-	0.33
Cumene	98-82-8	-	0.07
Ethylbenzene	100-41-4	-	0.59
Methanol	67-56-1	-	0.40
Methyl Isobutyl Ketone	108-10-1	-	0.47
Methylene Chloride	75-09-2	-	0.07
m-Xylene	108-38-3	-	2.67
Naphthalene	91-20-3	-	0.07
n-Hexane	110-54-3	-	0.04
o-Xylene	95-47-6	-	0.53
p-Xylene	106-42-3	-	2.67
Tetrachloroethene	127-18-4	-	13.14
Toluene	108-88-3	-	11.60
Trichloroethene	79-01-6	-	1.60
Xylene (mixtures and isomers)	1330-20-7	-	5.87

Laundering Emissions

Annual (Maximum) Average Emission Rates: (Pounds per Hour)				Theoretical Emission Rates		Maximum Emission Rates
				Tons per Year		Tons per Year
Pollutant	CAS No.	Prints	Shops	Prints	Shops	
VOCs	N/A	-	80.02	-	350.48	350.48
Federal HAPs	N/A	-	30.27	-	132.60	132.60
1,2-Dichloroethane	107-06-2	-	0.27	-	1.17	1.17
Cumene	98-82-8	-	0.07	-	0.29	0.29
Ethylbenzene	100-41-4	-	0.47	-	2.04	2.04
Methanol	67-56-1	-	0.33	-	1.46	1.46
Methyl Isobutyl Ketone	108-10-1	-	0.40	-	1.75	1.75
Methylene Chloride	75-09-2	-	0.07	-	0.29	0.29
m-Xylene	108-38-3	-	2.37	-	10.37	10.37
Naphthalene	91-20-3	-	0.07	-	0.29	0.29
n-Hexane	110-54-3	-	0.03	-	0.15	0.15
o-Xylene	95-47-6	-	0.47	-	2.04	2.04
p-Xylene	106-42-3	-	2.37	-	10.37	10.37
Tetrachloroethene	127-18-4	-	11.67	-	51.11	51.11
Toluene	108-88-3	-	10.34	-	45.27	45.27
Trichloroethene	79-01-6	-	1.40	-	6.13	6.13
Xylene (mixtures and isomers)	1330-20-7	-	5.20	-	22.78	22.78

US EPA ARCHIVE DOCUMENT

Washers P02 (Outdoor-vented)

Equipment	Prints (lb/hr)	Shops (lb/hr)	DNR Process ID	EPA Process Group
Washer - Jensen #1	1,950	2,400	P34	P02
Washer - Jensen #2	1,950	2,400	P35	P02
Washer - Unimac #2	150	200	P25	P02
Washer 2 Unimac #85	150	200	P18	P02

Laundering Emissions			
Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	861.84	49.14
Federal HAPs	N/A	127.28	18.60
1,2-Dichloroethane	107-06-2	0.08	0.18
Cumene	98-82-8	3.27	0.04
Ethylbenzene	100-41-4	12.77	0.32
Methanol	67-56-1	3.79	0.22
Methyl Isobutyl Ketone	108-10-1	1.64	0.25
Methylene Chloride	75-09-2	0.36	0.04
m-Xylene	108-38-3	17.16	1.46
Naphthalene	91-20-3	0.08	0.04
n-Hexane	110-54-3	0.48	0.02
o-Xylene	95-47-6	8.38	0.29
p-Xylene	106-42-3	17.16	1.46
Tetrachloroethene	127-18-4	0.96	7.17
Toluene	108-88-3	59.45	6.33
Trichloroethene	79-01-6	1.72	0.87
Xylene (mixtures and isomers)	1330-20-7	42.69	3.20

Laundering Emissions			
Annual (Maximum) Average Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	506.73	43.68
Federal HAPs	N/A	75.01	16.53
1,2-Dichloroethane	107-06-2	0.04	0.15
Cumene	98-82-8	1.92	0.04
Ethylbenzene	100-41-4	7.50	0.25
Methanol	67-56-1	2.23	0.18
Methyl Isobutyl Ketone	108-10-1	0.96	0.22
Methylene Chloride	75-09-2	0.20	0.04
m-Xylene	108-38-3	10.09	1.29
Naphthalene	91-20-3	0.04	0.04
n-Hexane	110-54-3	0.28	0.02
o-Xylene	95-47-6	5.03	0.25
p-Xylene	106-42-3	10.09	1.29
Tetrachloroethene	127-18-4	0.56	6.37
Toluene	108-88-3	35.03	5.64
Trichloroethene	79-01-6	1.00	0.76
Xylene (mixtures and isomers)	1330-20-7	25.22	2.84

Theoretical Emission Rates	
Tons per Year	
Prints	Shops
2,219.48	191.32
328.55	72.38
0.17	0.64
8.39	0.16
32.86	1.12
9.79	0.80
4.19	0.96
0.87	0.16
44.21	5.66
0.17	0.16
1.22	0.08
22.02	1.12
44.21	5.66
2.45	27.90
153.44	24.71
4.37	3.35
110.45	12.44

Maximum Emission Rates
Tons per Year
2,219.48
328.55
0.64
8.39
32.86
9.79
4.19
0.87
44.21
0.17
1.22
22.02
44.21
27.90
153.44
4.37
110.45

Steam Tunnel

Heat Input Rate	1.5	MMBtu/hr
	1,470.59	cf nat gas/hr
	lb/hour	**TPY**
CO2	176.47	772.94
Pb	0.00	0.00
N2O	0.00	0.01
PM/PM10/PM2.5	0.01	0.05
SO2	0.00	0.00
VOC	0.01	0.04
NOx	0.25	1.10
CO	0.12	0.54
methane	0.00	0.01
CO2-e	177.54	777.65

US EPA ARCHIVE DOCUMENT

Boiler

Heat Input Rate	10.46	MMBtu/hr
	10,254.90	cf nat gas/hr
	lb/hour	**TPY**
CO2	1,230.59	5,389.98
Pb	0.00	0.00
N2O	0.02	0.10
PM/PM10/PM2.5	0.08	0.34
SO2	0.01	0.03
VOC	0.06	0.25
NOx	1.74	7.64
CO	0.86	3.77
methane	0.02	0.10
CO2-e	1,238.08	5,422.78

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

Miscellaneous Combustion Sources

Heat Input Rate	10.93	MMBtu/hr
	10,713.73	cf nat gas/hr
	lb/hour	**TPY**
CO2	1,285.65	5,631.13
Pb	0.00	0.00
N2O	0.02	0.10
PM/PM10/PM2.5	0.08	0.36
SO2	0.01	0.03
VOC	0.06	0.26
NOx	1.82	7.98
CO	0.90	3.94
methane	0.02	0.11
CO2-e	1,293.47	5,665.40

Process#	Stack#	Equipment	Department	Brand	Installed	Cap. /Hr	Model/Type	SN	Burner Rating (Btu/hr)
NA	NA	Gas Fired Unit Heater #1	Wastewater	Modine		NA	PAH150HF	15012020393	150000
NA	NA	Gas Fired Unit Heater #2	DAF Room	Modine	Feb. 23 2012	NA	PDP150AE0130	390109170903152-3419	150000
NA	NA	Gas Fired Unit Heater #3	Chem Room	Renzor		NA	F75	ADF31K5N33347	75000
NA	NA	Gas Fired Unit Heater #4	Garage	Renzor		NA	F165	ANG31K6N2990	165000
NA	NA	Gas Fired Unit Heater #5	Garage	Renzor		NA	F165	ANG31K6N2991	165000
NA	NA	Gas Fired Unit Heater #6	Boiler Room	Renzor ITT	1-Jun-82	NA	XL105-3-E	AHD44B4N418-B	105000
NA	NA	Gas Fired Unit Heater #7	Soil Room	Renzor ITT	1-Jun-82	NA	XL105-3-E	AHD44B4N419-B	105000
NA	NA	Gas Fired Unit Heater #8	Stock Room	Renzor ITT	1-Jun-82	NA	XL125-3-E	AHD40A5N485	1255000
NA	NA	HVAC Units Roof #1	Office #1	Trane	1-Jun-82	NA	SFCB-B753-HA	C82G-09449	250000
NA	NA	HVAC Units Roof #2	Office #2	Trane	1-Jun-82	NA	SFCB-B753-HA	C82G-09448	250000
NA	NA	HVAC Units Roof #3	Office #3 Service	American Standard		NA	1CD075C3HABE	R011009360	205000
NA	NA	MUA Units Roof #1	Shipping Area	Applied Air Systems	1-Jun-82	NA	DFC-255-HBR	82-DFC-069	3575000
NA	NA	MUA Units Roof #2	Tunnel Area	Applied Air Systems	1-Jun-82	NA	DFC-255-HBR	82-DFC-068	3575000
NA	NA	MUA Units Roof #3	Soil Room	Applied Air Systems	1-Jun-82	NA	DFC-215_HBR	82-DFC-070	865000
NA	NA	Shop Towel Counter #1	Soil	G&K		6000 towels/hr	NA	NA	0
NA	NA	Water Heater #1	Roof Access	A.O. Smith		NA	FCG-40-246	FCG-40-J00N010S19	38000
NA	NA	EQ Tank	Roof Access	Eimco 15,000 Gallon Tank					0

PM Emissions by Source

Emission Limit: 0.1 gr/dscf (40 CFR 49.125(d)(1) or (3))

Emission Unit	Stack	Stack Height (ft)	Stack Diameter (ft)	Flow Rate (acfm)	Stack Gas Temperature °F	Stack Velocity (ft/sec)	PM Emission Limit (lb/hour)	PM Emission Limit (Tons/Year)
Process P40, Industrial Washing Machine (Unimac #1)	--	--	--	--	--			
Process P25, Industrial Washing Machine (Unimac #2)	S34	29.8	1.0	680	80	14.43	0.57	2.50
Process P18, Industrial Washing Machine Unimac #3)	S34	29.8	1.0	680	80	14.43	0.57	2.50
Process P34, Industrial Washing Machine #1	S34	29.8	1.0	680	80	14.43	0.57	2.50
Process P35, Industrial Washing Machine #2	S34	29.8	1.0	680	80	14.43	0.57	2.50
Process P36, Industrial Washing Machine #3	--	--	--	--	--			
Process P37, Industrial Washing Machine #4	--	--	--	--	--			
Process P38, Industrial Washing Machine #5	--	--	--	--	--			
Process P39, Industrial Washing Machine #6	--	--	--	--	--			
WashTech DR-80 Dryer	S07	41.1	1.7	1600	136	11.75	1.21	5.32
Process P06, Industrial Dryer (Cissell #2)	S07	41.1	1.7	2160	136	15.86	1.64	7.18
Process P08, Industrial Dryer #3	S08	44.1	2.2	9000	110	39.46	7.15	31.30
Process P09, Industrial Dryer #4	S09	44.1	2.2	9000	110	39.46	7.15	31.30
Jensen L-Tron® DTX 800 Lb. Dryer 1	S30	46.2	2.7	12000	120	34.93	9.36	41.01
Jensen L-Tron® DTX 800 Lb. Dryer 2	S31	46.2	2.7	12000	120	34.93	9.36	41.01
Boiler B01, 10.8 MMBtu/hr Natural Gas Fired Boiler	S01	33.7	1.7	2090	380	15.35	1.13	4.93
Miscellaneous Combustion 11.72 MMBtu/hr Natural Gas Fired	S12	25	0.8	990	180	32.83	0.70	3.07
Leonard VPT 24 Steam Tunnel Exh 1	TBD	0	1.33	3790	120	45.47	2.96	12.95
Leonard VPT 24 Steam Tunnel Exh 2	TBD	0	1.33	3790	120	45.47	2.96	12.95
Combustion Unit for Leonard VPT 24 Steam Tunnel	TBD	0	1.0	471.27	300	10.00	0.28	1.23
FACILITY TOTAL								**202.25**

E (lb/hour) = 0.1 gr/dscf x acfm x 60 min/hour x (528 scf)/(460 +T scf) x (lb/7,000 gr)

US EPA ARCHIVE DOCUMENT

US EPA ARCHIVE DOCUMENT

New Unit Summary

Equipment	Burner Rating Btu/hr	Prints (lb/hr)	Shops (lb/hr)
Jensen L-Tron Dryer #1 (New)	2,500,000	2600	2400
Jensen L-Tron Dryer #2 (New)	2,500,000	2600	2400
WashTech DR-80 Dryer (New)	250,000	300	300
Jensen L-Tron® 450 OPT-H (New)	NA	0	1350
Leonard VPT-24 Steam Tunnel	1,500,000		

		Potential Emissions without Administrative Limits (Tons per Year)					
Pollutant	CAS No.	Jensen L-Tron Dryer #1 (New)	Jensen L-Tron Dryer #2 (New)	WashTech DR-80 Dryer (New)	Jensen L-Tron® 450 OPT-H Washer (New)	Leonard VPT-24 Steam Tunnel	TOTALS
VOCs	N/A	72.31	72.31	8.34	49.67		202.64
Federal HAPs	N/A	14.32	14.32	1.79	18.79		49.22
1,2-Dichloroethane	107-06-2	0.13	0.13	0.02	0.17		0.43
Cumene	98-82-8	0.27	0.27	0.03	0.04		0.62
Ethylbenzene	100-41-4	1.07	1.07	0.12	0.29		2.55
Methanol	67-56-1	0.32	0.32	0.04	0.21		0.88
Methyl Isobutyl Ketone	108-10-1	0.19	0.19	0.02	0.25		0.65
Methylene Chloride	75-09-2	0.03	0.03	0.00	0.04		0.11
m-Xylene	108-38-3	1.44	1.44	0.17	1.47		4.52
Naphthalene	91-20-3	0.03	0.03	0.00	0.04		0.11
n-Hexane	110-54-3	0.04	0.04	0.00	0.02		0.11
o-Xylene	95-47-6	0.72	0.72	0.08	0.29		1.81
p-Xylene	106-42-3	1.44	1.44	0.17	1.47		4.52
Tetrachloroethene	127-18-4	5.52	5.52	0.69	7.24		18.97
Toluene	108-88-3	5.00	5.00	0.61	6.42		17.03
Trichloroethene	79-01-6	0.66	0.66	0.08	0.87		2.28
Xylene (mixtures and isomers)	1330-20-7	3.60	3.60	0.42	3.23		10.84
CO2		1,288.24	1,288.24	128.82		772.94	3,478.24
lead		0.00	0.00	0.00		0.00	0.00
N2O		0.02	0.02	0.00		0.01	0.06
PM/PM10/PM2.5		41.09	41.09	5.33		25.96	113.47
SO2		0.01	0.01	0.00		0.00	0.02
Combustion VOC		0.06	0.06	0.01		0.04	0.16
NOx		1.83	1.83	0.18		1.10	4.93
CO		0.90	0.90	0.09		0.54	2.43
methane		0.02	0.02	0.00		0.01	0.07
CO2-e		1,296.08	1,296.08	129.61		777.65	3,499.40

US EPA ARCHIVE DOCUMENT

L-Tron #1

Equipment	Burner Rating	Prints (lb/hr)	Shops (lb/hr)
Dryer - Challenge #3			
Dryer - Challenge #4			
Jensen L-Tron Dryer #1 (New)	2500000	2600	2400
Jensen L-Tron Dryer #2 (New)			
WashTech DR-80 Dryer (New)			
Dryer- Cissell #2			

Laundering Emissions			
Maximum Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	28.08	9.72
Federal HAPs	N/A	4.15	3.68
1,2-Dichloroethane	107-06-2	0.00	0.04
Cumene	98-82-8	0.11	0.01
Ethylbenzene	100-41-4	0.42	0.06
Methanol	67-56-1	0.12	0.04
Methyl Isobutyl Ketone	108-10-1	0.05	0.05
Methylene Chloride	75-09-2	0.01	0.01
m-Xylene	108-38-3	0.56	0.29
Naphthalene	91-20-3	0.00	0.01
n-Hexane	110-54-3	0.02	0.00
o-Xylene	95-47-6	0.27	0.06
p-Xylene	106-42-3	0.56	0.29
Tetrachloroethene	127-18-4	0.03	1.42
Toluene	108-88-3	1.94	1.25
Trichloroethene	79-01-6	0.06	0.17
Xylene (mixtures and isomers)	1330-20-7	1.39	0.63
Combustion Emissions			
CO2		323.53	323.53
Pb		0.00	0.00
N2O		0.01	0.01
PM/PM10/PM2.5		0.02	0.02
SO2		0.00	0.00
Combustion VOC		0.01	0.01
NOx		0.46	0.46
CO		0.23	0.23
methane		0.01	0.01
GHG-e		325.50	325.50
Total VOC		28.09	9.73
TOTAL PM		9.38	9.38

Laundering Emissions			
Annual (Maximum) Average Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	16.51	8.64
Federal HAPs	N/A	2.44	3.27
1,2-Dichloroethane	107-06-2	0.00	0.03
Cumene	98-82-8	0.06	0.01
Ethylbenzene	100-41-4	0.24	0.05
Methanol	67-56-1	0.07	0.04
Methyl Isobutyl Ketone	108-10-1	0.03	0.04
Methylene Chloride	75-09-2	0.01	0.01
m-Xylene	108-38-3	0.33	0.26
Naphthalene	91-20-3	0.00	0.01
n-Hexane	110-54-3	0.01	0.00
o-Xylene	95-47-6	0.16	0.05
p-Xylene	106-42-3	0.33	0.26
Tetrachloroethene	127-18-4	0.02	1.26
Toluene	108-88-3	1.14	1.12
Trichloroethene	79-01-6	0.03	0.15
Xylene (mixtures and isomers)	1330-20-7	0.82	0.56
Combustion Emissions			
CO2		323.53	323.53
Pb		0.00	0.00
N2O		0.01	0.01
PM/PM10/PM2.5		0.02	0.02
SO2		0.00	0.00
Combustion VOC		0.01	0.01
NOx		0.46	0.46
CO		0.23	0.23
methane		0.01	0.01
CO2-e		325.50	325.50
Total VOC		16.52	8.65
TOTAL PM		9.38	9.38

Theoretical Emission Rates	
Tons per Year	
Prints	Shops
72.31	37.84
10.70	14.32
0.01	0.13
0.27	0.03
1.07	0.22
0.32	0.16
0.14	0.19
0.03	0.03
1.44	1.12
0.01	0.03
0.04	0.02
0.72	0.22
1.44	1.12
0.08	5.52
5.00	4.89
0.14	0.66
3.60	2.46
1,417.06	1,417.06
0.00	0.00
0.03	0.03
0.09	0.09
0.01	0.01
0.06	0.06
2.01	2.01
0.99	0.99
0.03	0.03
1,425.68	1,425.68
72.38	37.91
41.10	41.10

Maximum Emission Rates
Tons per Year
72.31
14.32
0.13
0.27
1.07
0.32
0.19
0.03
1.44
0.03
0.04
0.72
1.44
5.52
5.00
0.66
3.60
1,417.06
0.00
0.03
0.09
0.01
0.06
2.01
0.99
0.03
1,425.68
72.38
41.10

US EPA ARCHIVE DOCUMENT

L-Tron #2

Equipment	Burner Rating	Prints (lb/hr)	Shops (lb/hr)
Dryer - Challenge #3			
Dryer - Challenge #4			
Jensen L-Tron Dryer #1 (New)			
Jensen L-Tron Dryer #2 (New)	2500000	2600	2400
WashTech DR-80 Dryer (New)			
Dryer- Cissell #2			

Laundering Emissions			
Maximum Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	28.08	9.72
Federal HAPs	N/A	4.15	3.68
1,2-Dichloroethane	107-06-2	0.00	0.04
Cumene	98-82-8	0.11	0.01
Ethylbenzene	100-41-4	0.42	0.06
Methanol	67-56-1	0.12	0.04
Methyl Isobutyl Ketone	108-10-1	0.05	0.05
Methylene Chloride	75-09-2	0.01	0.01
m-Xylene	108-38-3	0.56	0.29
Naphthalene	91-20-3	0.00	0.01
n-Hexane	110-54-3	0.02	0.00
o-Xylene	95-47-6	0.27	0.06
p-Xylene	106-42-3	0.56	0.29
Tetrachloroethene	127-18-4	0.03	1.42
Toluene	108-88-3	1.94	1.25
Trichloroethene	79-01-6	0.06	0.17
Xylene (mixtures and isomers)	1330-20-7	1.39	0.63
Combustion Emissions			
CO2		323.53	323.53
Pb		0.00	0.00
N2O		0.01	0.01
PM/PM10/PM2.5		0.02	0.02
SO2		0.00	0.00
Combustion VOC		0.01	0.01
NOx		0.46	0.46
CO		0.23	0.23
methane		0.01	0.01
CO2-e		325.50	325.50
Total VOC		28.09	9.73
TOTAL PM		9.38	9.38

Laundering Emissions			
Annual (Maximum) Average Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	16.51	8.64
Federal HAPs	N/A	2.44	3.27
1,2-Dichloroethane	107-06-2	0.00	0.03
Cumene	98-82-8	0.06	0.01
Ethylbenzene	100-41-4	0.24	0.05
Methanol	67-56-1	0.07	0.04
Methyl Isobutyl Ketone	108-10-1	0.03	0.04
Methylene Chloride	75-09-2	0.01	0.01
m-Xylene	108-38-3	0.33	0.26
Naphthalene	91-20-3	0.00	0.01
n-Hexane	110-54-3	0.01	0.00
o-Xylene	95-47-6	0.16	0.05
p-Xylene	106-42-3	0.33	0.26
Tetrachloroethene	127-18-4	0.02	1.26
Toluene	108-88-3	1.14	1.12
Trichloroethene	79-01-6	0.03	0.15
Xylene (mixtures and isomers)	1330-20-7	0.82	0.56
Combustion Emissions			
CO2		323.53	323.53
Pb		0.00	0.00
N2O		0.01	0.01
PM/PM10/PM2.5		0.02	0.02
SO2		0.00	0.00
Combustion VOC		0.01	0.01
NOx		0.46	0.46
CO		0.23	0.23
methane		0.01	0.01
CO2-e		325.50	325.50
Total VOC		16.52	8.65
TOTAL PM		9.38	9.38

Theoretical Emission Rates		Maximum Emission Rates
Tons per Year		Tons per Year
Prints	Shops	
72.31	37.84	72.31
10.70	14.32	14.32
0.01	0.13	0.13
0.27	0.03	0.27
1.07	0.22	1.07
0.32	0.16	0.32
0.14	0.19	0.19
0.03	0.03	0.03
1.44	1.12	1.44
0.01	0.03	0.03
0.04	0.02	0.04
0.72	0.22	0.72
1.44	1.12	1.44
0.08	5.52	5.52
5.00	4.89	5.00
0.14	0.66	0.66
3.60	2.46	3.60
1,417.06	1,417.06	1,417.06
0.00	0.00	0.00
0.03	0.03	0.03
0.09	0.09	0.09
0.01	0.01	0.01
0.06	0.06	0.06
2.01	2.01	2.01
0.99	0.99	0.99
0.03	0.03	0.03
1,425.68	1,425.68	1,425.68
72.38	37.91	72.38
41.10	41.10	41.10

US EPA ARCHIVE DOCUMENT

WashTech DR-80

Equipment	Burner Rating	Prints (lb/hr)	Shops (lb/hr)
Dryer - Challenge #3			
Dryer - Challenge #4			
Jensen L-Tron Dryer #1 (New)			
Jensen L-Tron Dryer #2 (New)			
WashTech DR-80 Dryer (New)	250000	300	300
Dryer- Cissell #2			

Laundering Emissions			
Maximum Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	3.24	1.22
Federal HAPs	N/A	0.48	0.46
1,2-Dichloroethane	107-06-2	0.00	0.00
Cumene	98-82-8	0.01	0.00
Ethylbenzene	100-41-4	0.05	0.01
Methanol	67-56-1	0.01	0.01
Methyl Isobutyl Ketone	108-10-1	0.01	0.01
Methylene Chloride	75-09-2	0.00	0.00
m-Xylene	108-38-3	0.06	0.04
Naphthalene	91-20-3	0.00	0.00
n-Hexane	110-54-3	0.00	0.00
o-Xylene	95-47-6	0.03	0.01
p-Xylene	106-42-3	0.06	0.04
Tetrachloroethene	127-18-4	0.00	0.18
Toluene	108-88-3	0.22	0.16
Trichloroethene	79-01-6	0.01	0.02
Xylene (mixtures and isomers)	1330-20-7	0.16	0.08
Combustion Emissions			
CO2		323.53	323.53
Pb		0.00	0.00
N2O		0.01	0.01
PM/PM10/PM2.5		0.02	0.02
SO2		0.00	0.00
Combustion VOC		0.01	0.01
NOx		0.46	0.46
CO		0.23	0.23
methane		0.01	0.01
CO2-e		325.50	325.50
Total VOC		3.25	1.23
TOTAL PM		1.24	1.24

Laundering Emissions			
Annual (Maximum) Average Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	1.91	1.08
Federal HAPs	N/A	0.28	0.41
1,2-Dichloroethane	107-06-2	0.00	0.00
Cumene	98-82-8	0.01	0.00
Ethylbenzene	100-41-4	0.03	0.01
Methanol	67-56-1	0.01	0.00
Methyl Isobutyl Ketone	108-10-1	0.00	0.01
Methylene Chloride	75-09-2	0.00	0.00
m-Xylene	108-38-3	0.04	0.03
Naphthalene	91-20-3	0.00	0.00
n-Hexane	110-54-3	0.00	0.00
o-Xylene	95-47-6	0.02	0.01
p-Xylene	106-42-3	0.04	0.03
Tetrachloroethene	127-18-4	0.00	0.16
Toluene	108-88-3	0.13	0.14
Trichloroethene	79-01-6	0.00	0.02
Xylene (mixtures and isomers)	1330-20-7	0.09	0.07
Combustion Emissions			
CO2		323.53	323.53
Pb		0.00	0.00
N2O		0.01	0.01
PM/PM10/PM2.5		0.02	0.02
SO2		0.00	0.00
Combustion VOC		0.01	0.01
NOx		0.46	0.46
CO		0.23	0.23
methane		0.01	0.01
CO2-e		325.50	325.50
Total VOC		1.92	1.09
TOTAL PM		1.24	1.24

Theoretical Emission Rates	
Tons per Year	
Prints	Shops
8.34	4.73
1.24	1.79
0.00	0.02
0.03	0.00
0.12	0.03
0.04	0.02
0.02	0.02
0.00	0.00
0.17	0.14
0.00	0.00
0.00	0.00
0.08	0.03
0.17	0.14
0.01	0.69
0.58	0.61
0.02	0.08
0.42	0.31
1,417.06	1,417.06
0.00	0.00
0.03	0.03
0.09	0.09
0.01	0.01
0.06	0.06
2.01	2.01
0.99	0.99
0.03	0.03
1,425.68	1,425.68
8.41	4.80
5.41	5.41

Maximum Emission Rates
Tons per Year
8.34
1.79
0.02
0.03
0.12
0.04
0.02
0.00
0.17
0.00
0.00
0.08
0.17
0.69
0.61
0.08
0.42
1,417.06
0.00
0.03
0.09
0.01
0.06
2.01
0.99
0.03
1,425.68
8.41
5.41

US EPA ARCHIVE DOCUMENT

Jensen 450 OPT-H

Equipment	Prints (lb/hr)	Shops (lb/hr)
Jensen L-Tron® 450 OPT-H (New)	0	1350

Laundering Emissions			
Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	-	12.76
Federal HAPs	N/A	-	4.83
1,2-Dichloroethane	107-06-2	-	0.05
Cumene	98-82-8	-	0.01
Ethylbenzene	100-41-4	-	0.08
Methanol	67-56-1	-	0.06
Methyl Isobutyl Ketone	108-10-1	-	0.07
Methylene Chloride	75-09-2	-	0.01
m-Xylene	108-38-3	-	0.38
Naphthalene	91-20-3	-	0.01
n-Hexane	110-54-3	-	0.01
o-Xylene	95-47-6	-	0.08
p-Xylene	106-42-3	-	0.38
Tetrachloroethene	127-18-4	-	1.86
Toluene	108-88-3	-	1.64
Trichloroethene	79-01-6	-	0.23
Xylene (mixtures and isomers)	1330-20-7	-	0.83

Laundering Emissions			
Annual (Maximum) Average Emission Rates: (Pounds per Hour)			
Pollutant	CAS No.	Prints	Shops
VOCs	N/A	-	11.34
Federal HAPs	N/A	-	4.29
1,2-Dichloroethane	107-06-2	-	0.04
Cumene	98-82-8	-	0.01
Ethylbenzene	100-41-4	-	0.07
Methanol	67-56-1	-	0.05
Methyl Isobutyl Ketone	108-10-1	-	0.06
Methylene Chloride	75-09-2	-	0.01
m-Xylene	108-38-3	-	0.34
Naphthalene	91-20-3	-	0.01
n-Hexane	110-54-3	-	0.00
o-Xylene	95-47-6	-	0.07
p-Xylene	106-42-3	-	0.34
Tetrachloroethene	127-18-4	-	1.65
Toluene	108-88-3	-	1.46
Trichloroethene	79-01-6	-	0.20
Xylene (mixtures and isomers)	1330-20-7	-	0.74

Theoretical Emission Rates	
Tons per Year	
Prints	Shops
-	49.67
-	18.79
-	0.17
-	0.04
-	0.29
-	0.21
-	0.25
-	0.04
-	1.47
-	0.04
-	0.02
-	0.29
-	1.47
-	7.24
-	6.42
-	0.87
-	3.23

Maximum Emission Rates
Tons per Year
49.67
18.79
0.17
0.04
0.29
0.21
0.25
0.04
1.47
0.04
0.02
0.29
1.47
7.24
6.42
0.87
3.23

US EPA ARCHIVE DOCUMENT

Total Emissions by Process

		Potential Emission Rates (Tons per Year), without Administrative Limitations						
	Pollutant	Dryers P03	Washers P01	Washers P02	Steam Tunnel	Boiler	Misc Combustion	TOTAL
Laundering Emissions	VOCs	233.63	350.48	2,219.48				2,803.59
	Federal HAPs	46.53	132.60	328.55				507.68
	1,2-Dichloroethane	0.41	1.17	0.64				2.22
	Cumene	0.88	0.29	8.39				9.56
	Ethylbenzene	3.46	2.04	32.86				38.36
	Methanol	1.03	1.46	9.79				12.28
	Methyl Isobutyl Ketone	0.61	1.75	4.19				6.56
	Methylene Chloride	0.10	0.29	0.87				1.27
	m-Xylene	4.65	10.37	44.21				59.24
	Naphthalene	0.10	0.29	0.17				0.57
	n-Hexane	0.13	0.15	1.22				1.50
	o-Xylene	2.32	2.04	22.02				26.38
	p-Xylene	4.65	10.37	44.21				59.24
	Tetrachloroethene	17.94	51.11	27.90				96.95
	Toluene	16.15	45.27	153.44				214.86
	Trichloroethene	2.15	6.13	4.37				12.65
	Xylene (mixtures and isomers)	11.63	22.78	110.45				144.86
Combustion Emissions	CO2	5,668.24			772.94	5,389.98	5,631.13	17,462.29
	Pb	0.00			0.00	0.00	0.00	0.00
	N2O	0.10			0.01	0.10	0.10	0.32
	PM/PM10/PM2.5	0.36			0.05	0.34	0.36	1.11
	SO2	0.03			0.00	0.03	0.03	0.09
	Combustion VOC	0.26			0.04	0.25	0.26	0.80
	NOx	8.03			1.10	7.64	7.98	24.74
	CO	3.97			0.54	3.77	3.94	12.22
	methane	0.11			0.01	0.10	0.11	0.33
	CO2-e	5,702.73			777.65	5,422.78	5,665.40	17,568.56
	Total VOC	233.89	350.48	2,219.48	0.04	0.25	0.26	2,804.39
	Allowable PM Emissions	157.13		9.98	27.14	4.93	3.07	202.25

PTE, Max Allowable and 2012 Actuals Comparison Table

Pollutant	Max Potential Emissions (TPY)	Max Allowable Emissions (TPY)	2012 Actual Emissions (TPY)
VOCs	2,804.39	234.00	57.11
Federal HAPs	507.68	24.90	9.20
1,2-Dichloroethane	2.22	9.90	0.02
Cumene	9.56	9.90	0.20
Ethylbenzene	38.36	9.90	0.81
Methanol	12.28	9.90	0.25
Methyl Isobutyl Ketone	6.56	9.90	0.12
Methylene Chloride	1.27	9.90	0.02
m-Xylene	59.24	9.90	-
Naphthalene	0.57	9.90	0.01
n-Hexane	1.50	9.90	0.05
o-Xylene	26.38	9.90	-
p-Xylene	59.24	9.90	-
Tetrachloroethene	96.95	9.90	0.56
Toluene	214.86	9.90	4.12
Trichloroethene	12.65	9.90	0.17
Xylene (mixtures and isomers)	144.86	9.90	2.87
CO2	17,462.29	-	1,073.82
Pb	0.00	0.59	0.00
N2O	0.32	-	0.02
PM/PM10/PM2.5*	202.25	202.25	2.99
SO2	0.09	249.00	0.01
NOx	24.74	249.00	1.79
CO	12.22	249.00	0.88
methane	0.33	-	0.02
CO2-e	17,568.56	74,900.00	1,080.44

US EPA ARCHIVE DOCUMENT