west virginia department of environmental protection

Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone (304) 926-0475 • FAX: (304) 926-0479

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3316
Plant ID No.:	003-00154
Applicant:	Procter and Gamble Manufacturing Company
Facility Name:	Tabler Station Facility
Location:	Berkeley County
NAICS Code:	325612, 325613, 325620
Application Type:	Construction
Received Date:	May 6, 2016
Engineer Assigned:	Steven R. Pursley, PE
Fee Amount:	$2,000.00
Date Received:	May 6, 2016, resubmitted October 13, 2016
Complete Date:	October 13,2016
Due Date:	January 11, 2017
Applicant Ad Date:	May 10, 2016
Newspaper:	*The Journal*
UTM's:	Easting: 757.0 Northing: 4,366.0 Zone: 17
Description:	Consumer products production facility.

DESCRIPTION OF PROCESS

Procter and Gamble (P&G) is submitting this Rule-13 (R13) permit application to the West Virginia Department of Environmental Protection (WVDEP) for the proposed construction of a greenfield facility to be located in Berkley County, West Virginia in the unincorporated community of Tabler Station (Tabler Station facility).

The Tabler Station facility will produce liquid soap and dry consumer laundry and cleaning products, including dryer applied fabric softener, shampoo, and body wash. The facility will produce surfactant paste and raw materials which will be used in liquid soap making processes. The facility will also have utilities to support the heating, cooling, ventilation, and steam needs of the manufacturing processes.

The equipment and operations at the facility will be installed and started up in multiple phases. The business operations contained in this permit application are those expected to be installed in the first phase of the project. Additional phases are still in detailed design and will be permitted at a later date. It is anticipated that all phases of this project will be permitted, installed, and operational within 5 years of beginning construction. P&G

anticipates that the eventual entire facility and planned operations together will not trigger major new source review (major NSR) permitting, also called prevention of significant deterioration (PSD) permitting.

As part of the first phase of the project, P&G proposes to install equipment in several distinct manufacturing areas:

* Surfactant Manufacturing;
* Liquid Soap Making A and B;
* Dry Consumer Products A;
* Site Supporting Utilities;
* Plastics Molding; and
* Plastics Molding Utilities

Surfactant Manufacturing

P&G proposes to install equipment to manufacture surfactants. The purpose of the surfactant making operation is primarily to manufacture surfactant pastes used in the liquid soap manufacturing process which is also included in this application. A secondary byproduct produced by the surfactant process is a precipitated acid mix (PAM). Similarly, a number of variations to the surfactant paste product are intended, based on the end use. These variations are achieved through the use of varying raw materials in different quantities in the surfactant manufacturing process.

With the startup of the surfactant process, it is necessary to preheat the sulfur reactors, which is accomplished with the use of four (4) natural gas preheaters; Startup is intended to occur approximately four (4) times per year per reactor. Gasses from the preheaters (only used during startup) are vented to the common stack. During startup, any SO_3 produced will be vented to the SO_3 absorber and then through the SO_2 scrubber. Raw sulfur is stored in sulfur tanks. Gases from the combustion of sulfur (normal operation) are vented through a SO_2 packed bed scrubber. During changeover, the SO_3 is vented to the SO_3 absorber, and exhaust gas is vented through the SO_2 scrubber. A byproduct produced during changeover periods is sulfuric acid (H_2SO_4).

Proposed emission sources in the surfactant processes include the following:

* Raw material, intermediate, and product tanks;
* Natural gas preheaters and sulfur reactors;
* In-line mixing and/or mixing tanks; and
* Product truck loading.

The proposed surfactant process will be controlled with a packed bed scrubber to control SO_2 and PM emissions.

Liquid Soap Making

P&G also proposes to install Liquid Soap A and B manufacturing processes. Both Soap A and Soap B manufacturing processes involve primarily mixing operations with no chemical transformations. The raw materials primarily consist of but are not limited to dyes, perfumes, surfactants essential for soap manufacturing, and minor component additives intended to deliver product performance attributes. Liquid raw materials will

either be piped from elsewhere on-site or be transported to the site in totes/drums which will be unloaded into the building for placement in to the mixing tanks. Dry raw materials will be weighed on a scale before being manually added to the mixing tanks.

Liquid Soap A is a variation of the product that contains a higher volatility processing aid. When Liquid Soap A is being manufactured, emission from the mixing tanks will be routed through a regenerative thermal oxidizer (RTO). Liquid Soap B does not contain the higher volatility processing aid and will not have emissions routed through the RTO.

The resultant mixture represents the final product. Variations of the mixture are dependent upon the soap product to be manufactured. The product, once made, is piped into a packing line for filling containers. After filling, the product will proceed to final packaging for off-site transport.

As part of quality assurance, process tanks and liquid filling equipment is periodically cleaned and sanitized using hot water. Residual raw material related emissions that may occur during cleaning and sanitization are accounted for in storage and process tank emissions calculations.

The emission sources for the liquid soap manufacturing process includes:

* Storing raw materials in tanks, totes, or drums
* Weighing and mixing raw materials
* Product packaging

The proposed liquid soap processes will be controlled with the following equipment to control VOC and PM emissions:

* Regenerative Thermal Oxidizer (RTO) (Liquid Soap A only); and
* Rotoclones, liquid (water) scrubbers.

Additionally, perfume may be used in the process. Emission points that have the potential to emit odor are controlled with activated carbon. The activated carbon serves as a control for employee comfort and nuisance odor prevention, rather than for criteria pollutants, such as VOC. As such, it was not considered a control device in this application.

Dry Consumer Laundry and Cleaning Products

Additionally, P&G proposes to install manufacturing lines to manufacture Dry Consumer Laundry and Cleaning Products. The process includes delivery of raw materials and transfer of material to day and mixing tanks. The mixture is then applied onto a substrate to produce the final product. The final product is trimmed to size, packaged, and sent to a warehouse for distribution.

The Dry Consumer Laundry and Cleaning Products A process produces a variety of consumer goods, all of which begin with a substrate. This substrate may receive a variety of liquid raw materials intended to enhance the performance and functionality of the consumer product. The raw materials typically consist of low-volatile, high molecular weight organic materials paired with a small amount of perfume. After the raw materials are applied, the substrate is cut to size, and packaged.

Various processing lines are involved with manufacturing cleaning articles into the different consumer cleaning products. The sources of emissions include the following equipment:

* Raw material tanks
* Intermediate mixing
* Addition of liquid raw materials
* Finished product packaging

The proposed Dry Consumer Laundry and Cleaning Products process will be controlled with baghouses and bin vent filters to control particulate emissions.

As with the liquid soap making, perfume may be used in the process. Emission points that have the potential to emit odor are controlled with activated carbon. The activated carbon serves as a control for employee comfort and nuisance odor prevention, rather than for criteria pollutants, such as VOC. As such, it was not considered a control device in this application.

Utilities

To support the heating, cooling, ventilation, and steam needs for the processes that are being proposed with this project, P&G is proposing to install the following equipment:

* Two (2) 75,000 pound per hour (pph) steam boilers
* One (1) 26,755 pound per hour (pph) steam boiler
* One (1) 11,605 pound per hour (pph) steam temporary boiler
* Six (6) natural gas fired building heaters
* Three (3) cooling towers

The boilers will be fueled primarily by natural gas. One 75,000 pph boiler will have a back-up fuel of ultra-low sulfur diesel (ULSD). The purpose of the boilers is to supply heat or steam. The temporary boiler will be a mobile unit that will provide support to plant processes as the main facility boilers are installed. The temporary boiler will not be run at the same time as the main facility boilers.

The purpose of the building heaters is to provide comfort heating for the warehouse and other buildings. The cooling towers are for both comfort and process cooling water supply to buildings and manufacturing equipment associated with the various processes.

To be prepared for power outages and to be equipped to quickly respond to fires, the following equipment is also proposed be installed:

* Three (3) 350 KW standby/backup electric generators with diesel engines
* Two (2) 311 horsepower (HP) fire pumps with diesel engines
* The standby/backup generator and fire pump engines will be fueled with ULSD and meet U.S. EPA fs Tier 3 specifications.

Additionally, the plant intends to install five diesel tanks, less than 500 gallons, to supply the standby/backup generators and fire pump engines. Also, a diesel refueling station to supply on-site mobile equipment is proposed to be installed. The following fuel tanks will be installed at the site:

* 5,000 gallon ULSD tank for vehicle refueling
* 35,000 gallon ULSD tank for back up fuel for the boilers

The Tabler Station facility intends to install a water pretreatment system as well as a wastewater pretreatment system. The water pretreatment system will purify and soften the water before use to maintain product quality. The wastewater system will use chlorination and other process to clean the wastewater before discharge to the sanitary sewer.

Plastics Molding

The Tablers Station facility will incorporate third party suppliers who will provide a plastics molding process for the manufacture of bottles, caps, and other formed plastic parts.

The plastic bottle and cap making process involves injection molding, blow molding, and extrusion blow molding. The process starts with the unloading of plastic pellets from railcars into storage silos. From the silos, the pellets are ground and piped to presses and molding machines which make bottles, caps and other formed plastic parts depending on product needs. The presses and molding machines heat the plastic with electrical heaters and via friction heating. Scrap plastic is reground and reused directly in the making process.

Plastics Molding Utilities

To support the heating, cooling, and ventilation needs of the Plastics Molding processes that are being proposed with this project, P&G is proposing to install the following equipment:

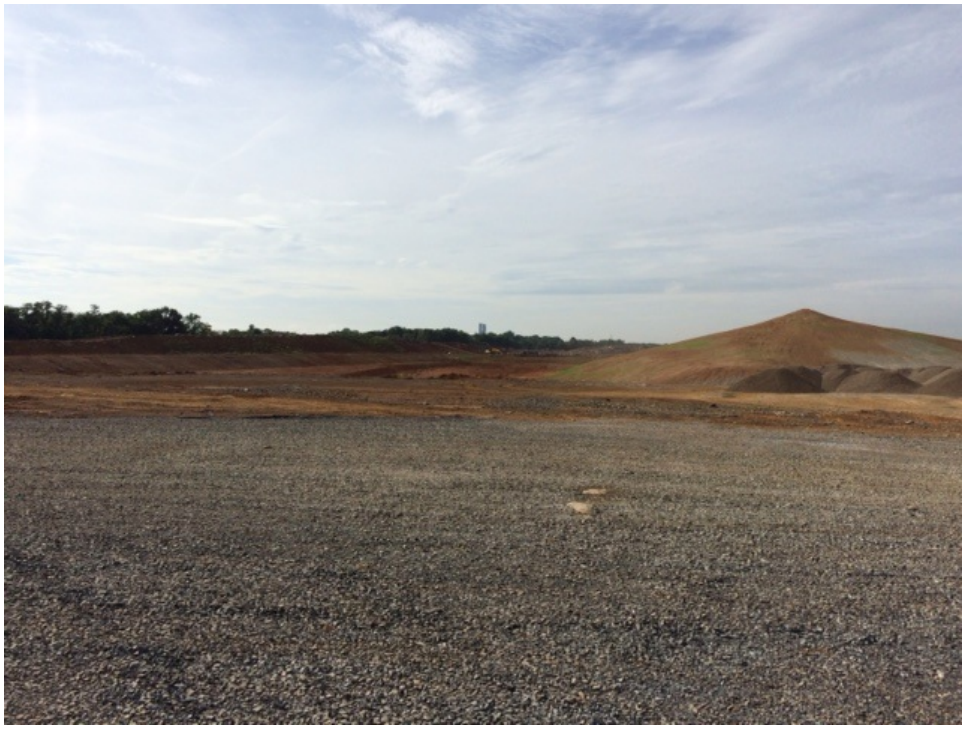
* Six (6) natural gas fired building heaters;
* One (1) cooling tower; and
* One (1) 70kW standby/backup electric generator with natural gas engine.

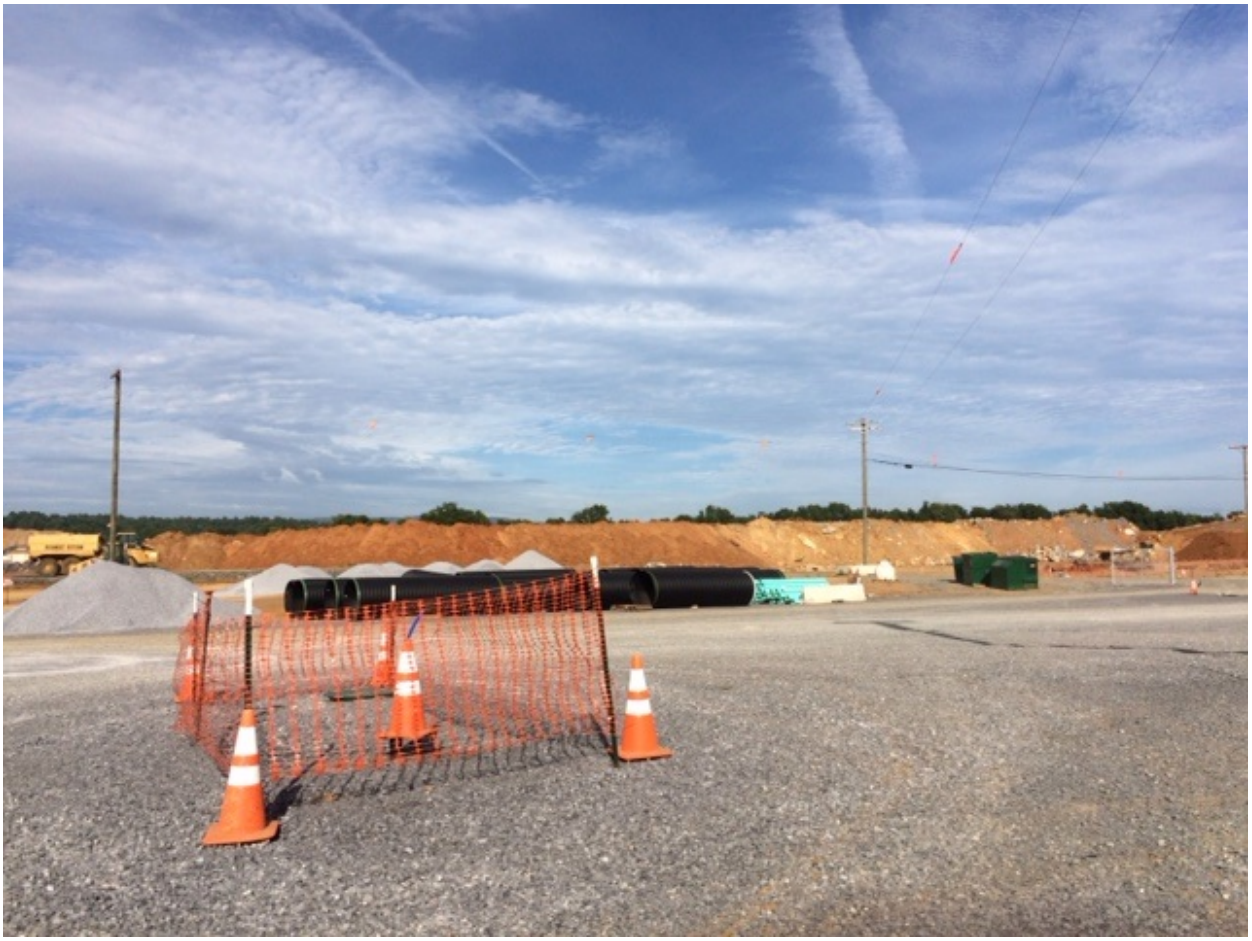
The purpose of the building heaters is to provide comfort heating for the warehouse and other buildings. The cooling tower is for both comfort and process cooling water supply to buildings and manufacturing equipment associated with the various processes. The backup electric generator is to be prepared for power outages.

SITE INSPECTION

A site inspection of the proposed site was performed by Joseph Kreger of WVDAQs Eastern Panhandle Regional Office on August 10, 2016. He reported that site preparation activities (as authorized under general permit G40-C074) were taking place. To get to the facility take exit 8 of I-70 and proceed east on Tabler Station Road for approximately 0.9 miles. Then turn left on Development Drive and proceed approximately 0.2 miles to the site entrance.

Mr. Kreger took the following photographs on the day of his site inspection.





ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

The emission calculation methodologies for each of the six manufacturing areas are discussed below.

Surfactant Manufacturing

Scrubber Emissions

The Tabler Station facility will emit NO_x, SO_2, VOC, H_2SO_4, and PM through a packed bed SO_2 scrubber as a result of surfactant manufacturing. The potential to emit for VOCs is derived from the stack test data recorded by similar P&G sites. The NO_x, SO_2, PM_{10}, and $PM_{2.5}$ emission rates are calculated using emission factors supplied by the manufacturer. During limited startup periods, natural gas preheaters are run to preheat the process from a cold start; emissions are calculated using AP-42 emission factors. Annual preheater emissions are based on 72 hours of operation per year for each of the four, 4 mmbtu/hr preheaters.

A majority of the sulfur burned is transformed into SO_3, absorbed and converted into finished product in the surfactant making process. However, a fraction of the SO_2 is not converted to SO_3 and not all of the SO_3 is consumed in the reaction. The excess SO_2 is not emitted; it is controlled by the SO_2 scrubbers. In the presence of water vapor, SO_3 becomes droplets of H_2SO_4 (i.e. sulfuric acid mist). H_2SO_4 droplets contribute to the condensable fraction of PM_{10} and $PM_{2.5}$ emissions. For purposes of this application it was assumed that the PM_{10} and $PM_{2.5}$ emissions from the scrubber during normal operations were equal to the residual SO_3 from the scrubber (which, in the presence of water vapor is H_2SO_4).

Scrubber Stack Emissions:

Unit	NO_x		SO_2		VOC		$PM/PM_{2.5}$		CO		H_2SO_4	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	0.53	2.3	2.10	0.82	1.80	2.17	6.90	13.82	0.03	0.10	5.10	11.66
2	0.53	2.3	2.10	0.82	1.80	2.07	6.90	9.84	0.03	0.10	5.10	7.77
Total	**1.06**	**4.6**	**2.1**	**1.65**	**1.80**	**4.24**	**6.9**	**23.7**	**0.06**	**0.20**	**10.2**	**19.4**

Note that annual emissions do not necessarily reflect the hourly emissions extrapolated over the course of a full year. This is because the maximum hourly emissions include emissions from start ups and changeovers which are periodic and short term in nature.

Scrubber Preheater Emissions (all four units combined):

NO_x		SO_2		VOC		$PM/PM_{2.5}$		CO		HAPs	
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
0.78	0.03	0.01	0.01	0.09	0.01	0.12	0.01	1.3	0.05	0.03	0.01

Tank Emissions (Vertical Fixed Roof)

The proposed Tabler Station project includes tanks in each of the proposed process areas. Monthly VOC emissions from fixed roof tanks are calculated using procedures in AP-42 Section 7.1. Fixed roof tanks typically have two major types of emissions: working losses and breathing losses. Working losses occur during the day to day operations of the tank from the release of the vapor space as the tank is filled and emptied. Breathing losses occur at outdoor ambient tanks that are subject to daily temperature changes with the weather. A majority of the tanks at the Tabler Station facility are temperature controlled and, as such, have negligible breathing losses. Breathing losses were calculated for ambient outdoor tanks.

The tanks at the Tabler Station facility contain a variety of organic materials used in the manufacture of surfactants, liquid soap, and dry consumer laundry and cleaning products. Emissions from tanks containing raw materials were calculated using the specific properties of that material. Emissions from tanks containing intermediate materials or perfumes were calculated using vapor pressure groups. Groups were assigned using the metric found in the following table.

Group Number	Vapor Pressure Range (psi)	Vapor Pressure Used in Calculations (psi)
1	0-0.0015	0.0015
2	0.0015-0.1	0.1
3	0.1-0.5	0.5
4	0.5-0.86	0.86

The vapor pressure ranges for the groups were selected based on the expected spectrum of organic chemical tanks at the Tabler Station facility. Intermediate material and perfume tanks were classified by process area, and then sorted by vapor pressure and assigned a group. Next, the stored chemicals in each group were assigned the chemical properties (e.g. density, vapor pressure, and molecular weight) representing either an average value of that group (density and molecular weight) or the maximum value of that group (vapor pressure).

Minor components of raw material HAP have been included in individual material usage tank calculations, as applicable. HAP amounts in raw materials based on review of Material Safety Data Sheets.

Tank	VOCs		H_2SO_4		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
3	0.02	0.06	--	--	--	--
4	0.01	0.03	--	--	0.01	0.03
5	0.01	0.03	--	--	0.01	0.03
6	0.20	0.86	--	--	--	--

7	0.01	0.01	--	--	0.01	0.01
8	0.01	0.01	--	--	0.01	0.01
9	0.01	0.01	--	--	--	--
10	0.01	0.05	--	--	0.01	0.01
11	0.01	0.05	--	--	0.01	0.01
12	0.01	0.04	--	--	0.01	0.01
13	0.01	0.04	--	--	0.01	0.01
14	0.01	0.04	--	--	--	--
15	0.01	0.04	--	--	--	--
16	0.01	0.01	--	--	--	--
17	--	--	0.01	0.01	--	--
18	0.01	0.01	--	--	--	--
Total[1]	**0.28**	**1.20**	**0.01**	**0.01**	**0.03**	**0.10**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Truck Loading and Unloading

The transfer of organic chemicals into and out of trucks will occur as a part of the operations at the Tabler Station facility. Intermediates and final products that are loaded into trucks produce vapors containing VOC, HAP and H_2SO_4. The emissions from unloading of trucks is accounted for in the working losses of the tanks. The emissions from the loading of trucks are calculated using Equation 1 in AP-42 Section 5.2.

A saturation factor of 0.6 is selected based on Table 5.2-1 of AP-42 Section 5.1 for bottom/submerged loading of a truck during normal loadout. VOC concentration is assumed to be 100% whereas HAP and H_2SO_4 vary by stream.

Truck Loading Emissions:

Truck	VOCs		H_2SO_4	
	lb/hr	tpy	lb/hr	tpy
PAM Truck Loadout	0.01	0.01	0.01	0.01
Surfactant Truck Loadout	0.02	0.06	--	--
Sulfuric Acid Truck Loadout	--	--	0.01	0.01
Total[1]	**0.02**	**0.06**	**0.01**	**0.01**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Liquid Soap A & B Making

Tank Emissions

Tank Emissions were calculated in the same manner as discussed above regarding surfactant manufacturing.

Outdoor Tank Emissions:

Tank	VOCs		HAPs	
	lb/hr	tpy	lb/hr	tpy
20	0.01	0.02	0.01	0.01
21	0.01	0.03	0.01	0.01
22	0.01	0.03	--	--
23	0.01	0.01	0.01	0.01
24	--	--	--	--
25	0.01	0.01	--	--
26	--	--	--	--
27	0.01	0.02	--	--
28	0.01	0.01	--	--
29	0.01	0.01	--	--
30	0.01	0.01	--	--
31	0.04	0.15	--	--
32	0.24	1.00	--	--
33	0.01	0.01	--	--
34	0.05	0.20	0.01	0.01
35	0.05	0.20	0.01	0.01
36	0.05	0.20	0.01	0.01
37	0.05	0.20	0.01	0.01
50	0.01	0.01	--	--
56	0.01	0.01	--	--
53	0.01	0.01	--	--
Total[1]	**0.24**	**1.80**	**0.02**	**0.05**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Indoor Tank Emissions

Tank	VOCs		HAPs	
	lb/hr	tpy	lb/hr	tpy
38	0.03	0.11	--	--
40	0.01	0.01	--	--
41	0.01	0.01	--	--
42	0.01	0.02	--	--
43	0.05	0.20	--	--
44	0.02	0.06	--	--
45	0.01	0.01	--	--
46	0.01	0.04	--	--
47	0.01	0.04	--	--
51	--	--	--	--
52	0.01	0.01	--	--
54	0.01	0.01	--	--
55	0.01	0.01	--	--
57	0.01	0.01	--	--
59	0.01	0.01	--	--
60	0.01	0.01	0.01	0.01
61	0.05	0.22	--	--
63	0.01	0.05	--	--
64	0.01	0.01	0.01	0.01
65	0.01	0.01	0.01	0.01
66	0.01	0.01	0.01	0.01
67	0.01	0.01	0.01	0.01
68	0.01	0.01	0.01	0.01
69	0.01	0.01	0.01	0.01
70	0.01	0.01	0.01	0.01
71	0.01	0.01	0.01	0.01

72	0.01	0.01	0.01	0.01
73	0.01	0.01	0.01	0.01
74	0.01	0.01	0.01	0.01
75	0.01	0.01	0.01	0.01
76	0.01	0.01	0.01	0.01
77	0.01	0.01	0.01	0.01
87	0.01	0.01	--	--
88	0.01	0.01	---	--
89	0.01	0.01	--	--
90	0.01	0.01	--	--
91	0.01	0.01	--	--
92	0.01	0.01	--	--
93	0.01	0.01	--	--
94	0.01	0.01	--	--
94b	0.01	0.01	--	--
94c	0.01	0.01	--	--
94d	0.01	0.01	--	--
94e	0.01	0.01	--	--
95	0.01	0.01	--	--
96	0.01	0.01	--	--
97	0.01	0.01	--	--
98	0.01	0.01	--	--
99	0.01	0.01	--	--
100	0.01	0.01	--	--
101	0.01	0.01	--	--
102	0.01	0.01	--	--
103	0.01	0.01	--	--
104	0.01	0.01	--	--
105	0.01	0.01	--	--

106	0.01	0.01	--	--
107	0.01	0.01	--	--
108	0.01	0.01	--	--
109	0.01	0.01	--	--
110	0.01	0.01	--	--
111	0.01	0.01	--	--
112	0.01	0.01	--	--
113	0.01	0.01	--	--
114	0.01	0.01	--	--
115	0.01	0.01	--	--
116	0.01	0.01	--	--
117	0.01	0.01	--	--
118	0.01	0.01	--	--
Total[1]	**0.20**	**0.80**	**0.01**	**0.01**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Process Operations

The process tanks for Liquid Soap A and B manufacturing are equipped with rotoclones for dust control. In addition, the process tanks for Liquid Soap A are equipped with an RTO. PM, PM_{10}, and $PM_{2.5}$ emissions from the rotoclones are calculated based on grain loading based on P&G process knowledge. It is conservatively assumed that PM_{10} and $PM_{2.5}$ emissions are equal to PM emissions. The VOC emissions from the process tanks for Liquid Soap B are calculated based on P&G process knowledge. The RTO emission factors are based on a mass balance of VOC, vendor guarantees (NO_x, CO), and AP-42 factors (PM_{10}, $PM_{2.5}$, SO_2).

Finished Product Packing and Capping Emissions are based on AP-42 Chapter 7.1, Equation 1-29.

Finished Product Packing and Capping Emissons:

EU ID	Description	VOCs	
		lb/hr	tpy
119	Packing and Capping Line	0.01	0.01

Rotoclone Emissions

Rotoclone Number	Process Unit Numbers	VOCs		$PM/PM_{2.5}$	
		lb/hr	tpy	lb/hr	tpy
3C	120S-123S	0.20	0.86	0.39	1.69
4C	124S-127S	0.37	1.59	0.81	3.6
5C	128S-131S	0.44	1.93	0.81	3.6
6C	132S-135S	0.37	1.59	0.54	2.4
7C	136S-139S	--	--	0.17	0.76
8C	140S-144S	--	--	0.17	0.76
9C	146S-148S	1.57	6.85	0.36	1.3
10C	150S-152S	1.57	6.85	0.36	1.3
11C	154S-156S	1.57	6.85	0.36	1.3
12C	158S-160S	1.57	6.85	0.36	2.3
13C	161S-162S	0.01	0.05	0.24	1.05
Fugitive		25.56 [1]	--	--	--
Total[1]		**7.67**	**33.42**	**4.57**	**20.06**

[1]Breakdown between fugitive and point sources are estimated.

RTO Emissions (RTO controls Emission Units 145S, 149S, 153S and 157S):

Control Device Number	NO_x		SO_2		VOC		$PM/PM_{2.5}$		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
14C	0.24	1.10	0.01	0.01	6.40	5.40	0.02	0.07	1.30	5.80
RTO inoperable[1]	--	--	--	--	213.5	2.60	--	--	--	--
Total	0.24	1.10	0.01	0.01	213.5	8.00	0.02	0.07	1.30	5.80

[1]Assumes RTO is down 24 hours per year.

Dry Consumer Products Manufacturing

Tank Emissions

Tank Emissions were calculated in the same manner as discussed above regarding surfactant manufacturing.

Outdoor Tanks

Tank	VOCs	
	lb/hr	tpy
163	0.01	0.01
164	0.01	0.01
165	0.07	0.31
Total[1]	**0.07**	**0.31**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Indoor Tanks

Tank	VOCs	
	lb/hr	tpy
166	0.01	0.03
167	0.01	0.03
168	0.01	0.03
169	0.01	0.02
170	0.01	0.02
171	0.01	0.02
172	0.01	0.02
173	0.01	0.02
174	0.01	0.02
175	0.01	0.02
176	0.01	0.02
177	0.01	0.02
178	0.01	0.02
179	0.01	0.02
180	0.01	0.02
181	0.01	0.02
182	0.01	0.02
183	0.01	0.02

184	0.01	0.02
185	0.01	0.02
186	0.01	0.02
187	0.01	0.02
188	0.01	0.02
Total[1]	**0.09**	**0.36**

Baghouses and fabric filters are proposed to control particulate emissions for Tabler Station in the Dry Consumer Laundry and Cleaning Products. PM, PM_{10}, and $PM_{2.5}$ emissions from the baghouses are calculated based on fabric filter grain loading and baghouse flow rates based on P&G process knowledge. It is conservatively assumed that PM_{10} and $PM_{2.5}$ emissions are equal to PM emissions.

EU ID	Control Device ID	$PM/PM_{2.5}$	
		lb/hr	tpy
189	15C	0.07	0.3
190	16C	0.05	0.21
191	17C	0.05	0.2
192	18C	1.54	6.8
193	19C	1.54	6.8
194	20C	0.56	2.4
Total		**3.81**	**16.71**

The Dry Consumer Laundry and Cleaning Products process produces a variety of consumer goods, all of which begin with a substrate. This substrate may receive a variety of liquid raw materials intended to enhance the performance and functionality of the consumer product. The raw materials typically consist of low-volatile, high molecular weight organic materials paired with a small amount of perfume. After the raw materials are applied, the substrate is cut to size, and packaged. A small amount of VOC emissions will result from the application process and subsequent exposed substrate surface. Regardless of the type of material applied or substrate used, emissions evaporating from the substrate will disperse similar to emissions evaporating from a residual “puddle”, which provides a conservative estimate of potential emissions. The area over which emissions could potentially discharge into the atmosphere is the same as the area over which raw materials would be applied and therefore varies based on the application process. The evaporation and emissions of VOC can be estimated using the equation found in EPA’s 2007 Emission Inventory Improvement Program’s Technical Report Series Volume II Section 16, pages 49-50.

Emission Unit	VOCs	
	lb/hr	tpy
195	2.0	8.70

Utilities (Except Supplier Plastics Molding Utilities)

Boilers

CO, VOC, PM_{10}, $PM_{2.5}$, SO_2 and lead emissions from the proposed boilers are calculated using the emission factors found in AP-42 Section 1.4 (natural gas) except where a manufacturer's guarantee applies. The H_2SO_4 emission factor was calculated by assuming one percent of the sulfur contained within the natural gas is emitted as sulfuric acid.

Boiler Criteria Emissions

Boiler	NO_x		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$		CO	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	4.5	19.8	0.04	0.16	0.22	1.00	0.47	2.0	0.47	2.0	0.47	2.0	2.30	10.0
2	4.5	19.8	0.04	0.16	0.22	1.00	0.47	2.0	0.47	2.0	0.47	2.0	2.30	10.0
3	2.3	9.9	0.02	0.09	0.11	0.49	0.23	1.0	0.23	1.0	0.23	1.0	1.10	5.0
Total	**11.30**	**49.50**	**0.10**	**0.41**	**0.55**	**2.49**	**1.17**	**5.00**	**1.17**	**5.00**	**1.17**	**5.00**	**5.70**	**25.00**

Boiler HAP Emissions

Boiler	Formaldehyde		Hexane		Total HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
1	0.01	0.02	0.11	0.48	0.12	0.5
2	0.01	0.02	0.11	0.48	0.12	0.5
3	0.01	0.01	0.06	0.24	0.06	0.25
Total	**0.03**	**0.05**	**0.28**	**1.20**	**0.30**	**1.25**

Cooling Towers

The Tabler Station facility includes three cooling towers. The anticipated pollutants are PM, PM_{10}, and $PM_{2.5}$. Potential hourly emissions from the cooling tower are calculated using the methodology in AP-42 Section 13.4-1 and assumes a drift of 0.005%. $PM_{2.5}$ is conservatively assumed to equal PM.

Cooling Tower	$PM/PM_{10}/PM_{2.5}$	
	lb/hr	tpy
Unit 1	0.33	1.52
Unit 2	0.81	3.48
Unit 3	0.21	0.90
Total	**1.35**	**5.90**

Reciprocating Internal Combustion Engines

The Tabler Station facility will utilize three generator engines and two fire pump engines that will be subject to the emission limitations in NSPS Subpart IIII. Emissions from the engines are calculated based on emissions factors provided by the manufacturers. Since this equipment will only operate during emergency situations and routine maintenance and testing, annual emissions are calculated based on 500 hours of operations.

Engine	NO_x		SO_2		VOC		$PM/PM_{2.5}$		CO		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
203	1.80	0.45	0.01	0.01	0.07	0.02	0.07	0.02	0.55	0.14	0.02	0.01
204	1.80	0.45	0.01	0.01	0.07	0.02	0.07	0.02	0.55	0.14	0.02	0.01
205	3.5	0.87	0.01	0.01	0.05	0.02	0.05	0.02	0.55	0.14	0.03	0.01
206	3.5	0.87	0.01	0.01	0.05	0.02	0.05	0.02	0.55	0.14	0.03	0.01
207	3.5	0.87	0.01	0.01	0.05	0.02	0.05	0.02	0.55	0.14	0.03	0.01
Total[1]	**14.10**	**3.51**	**0.05**	**0.02**	**0.29**	**0.07**	**0.29**	**0.07**	**2.75**	**0.70**	**0.10**	**0.03**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Diesel Tanks

Diesel tank emissions were calculated per Section 7.1 of AP-42. Specifically equations in section 7.1.3.1.

Tank	VOCs	
	lb/hr	tpy
208	0.01	0.01

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Heaters

The proposed process heaters will be fired on natural gas. Emission factors for NO_x, CO, PM, $PM_{2.5}$, PM_{10}, SO_2, and VOC from AP-42 Section 1.4 were used.

Heater	NO_x		SO_2		VOC		CO		$PM/PM_{2.5}$		Hexane		Tot. HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
210	0.15	0.65	0.01	0.01	0.02	0.08	0.26	1.10	0.03	0.10	0.01	0.03	0.01	0.03
211	0.15	0.65	0.01	0.01	0.02	0.08	0.26	1.10	0.03	0.10	0.01	0.03	0.01	0.03
212	0.15	0.65	0.01	0.01	0.02	0.08	0.26	1.10	0.03	0.10	0.01	0.03	0.01	0.03
213	0.15	0.65	0.01	0.01	0.02	0.08	0.26	1.10	0.03	0.10	0.01	0.03	0.01	0.03
214	0.15	0.65	0.01	0.01	0.02	0.08	0.26	1.10	0.03	0.10	0.01	0.03	0.01	0.03
215	0.15	0.65	0.01	0.01	0.02	0.08	0.26	1.10	0.03	0.10	0.01	0.03	0.01	0.03
Total[1]	**0.90**	**3.90**	**0.02**	**0.05**	**0.10**	**0.44**	**1.51**	**6.60**	**0.14**	**0.60**	**0.04**	**0.15**	**0.04**	**0.15**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Water and Wastewater Pretreatment

The Tabler Station facility will have water pretreatment onsite to maintain the quality of the cooling tower and boiler feed water. In addition, the facility will have pretreatment processes for the wastewater. The equipment in these areas may include tanks for wastewater collection and treatment and totes of treatment chemicals. Processes may include a dissolved air flotation unit, physical and chemical pretreatment, biological treatment, and settling tanks. Emissions were calculated using an engineering estimate of the amount of each treatment chemical used and its volatile and/or hazardous content.

Material	Process	VOCs		HAPs	
		lb/hr	tpy	lb/hr	tpy
Nalco 3DT 265	Cooling Tower Water	--	--	--	--
Nalco 7320	Cooling Tower Water	2.83	12.40	--	--
Nalco 7330	Cooling Tower Water	0.12	0.51	--	--
Nalco Stabrex ST70	Cooling Tower Water	--	--	--	--
Nalco Nexguard 22310	Boiler Feedwater	--	--	--	--
Nalco 1720	Boiler Feedwater	--	--	--	--
Nalco 1820	Boiler Feedwater	0.03	0.12	--	--
Sodium Hypochlorite	Recycle Water Disinfection	0.01	0.01	0.01	0.01
Total		**2.99**	**13.04**	**0.01**	**0.01**

Ink Usage and Holt Melt Glue

Emissions from ink and glue usage were calculated by multiplying the percentage of each ink that is a VOC (by weight) and assuming all of those VOCS are lost to the atmosphere.

Ink Usage

Business Unit	VOCs		HAPs	
	lb/hr	tpy	lb/hr	tpy
Soap Making	0.02	0.08	0.02	0.08
Dry Consumer Products	0.06	0.27	0.02	0.08
Customization	0.01	0.03	--	--
Total	**0.09**	**0.38**	**0.04**	**0.16**

Glue Usage

Business Unit	VOCs		HAPs	
	lb/hr	tpy	lb/hr	tpy
Soap Making	0.03	0.13	0.01	0.01
Dry Consumer Products	0.02	0.08	0.01	0.01
Customization	0.01	0.01	0.01	0.01
Total	**0.05**	**0.21**	**0.01**	**0.01**

Haul Roads

Paved haul road emissions calculations submitted by the applicant seemed unreasonably low. Therefore, the writer re-calculated them by using AP-42 Section 13.2.1. Said calculations will be included in the file.

Vehicles	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Delivery Trucks	1.45	6.35	0.29	1.27	0.08	0.32

Plastics Molding

Rail Car Unloading

Rail car unloading emissions were estimated using the average dusting factor for all types of pellet storage identified by EPA. Five different unloading points can feed any of 24 storage

silos. A 90% control efficiency was taken to account for the use of cyclones to control PM emissions from the process.

Cyclone	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
21C	0.08	0.35	0.08	0.35	0.08	0.35
22C	0.08		0.08		0.08	
23C	0.08		0.08		0.08	
24C	0.08		0.08		0.08	
25C	0.08		0.08		0.08	

Silo Storage

Silo storage emissions were estimated using the average dusting factor for all types of pellet storage identified by EPA.

Silos	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
222S-245S (combined)	0.80	3.50	0.80	3.50	0.80	3.50

Plastic Regrind

Plastic regrind emissions were estimated using the average dusting factor for all types of pellet storage identified by EPA. The resulting factor was then multiplied by 3 to account for the regrind process. A control efficiency of 95% was then taken to account for the bin vent filter.

Emission Unit	PM		PM_{10}		$PM_{2.5}$	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
246	0.04	0.17	0.04	0.17	0.04	0.17

Fugitive Emission Losses

When the plastic pellets are heated to be pressed or molded they emit a small quantity of VOC. The VOC emitted is calculated using a factor from the Michigan DEQ document “Plastics Production and Products Manufacutring”.

The other fugitive VOCs are from cleaning products and are calculated assuming 100% loss rate of volatile components of cleaning products.

Emission Unit	VOCs	
	lb/hr	tpy
247S (Forming)	0.70	3.07
248S (Cleaning)	1.37	6.00
Total	**2.07**	**9.07**

Plastics Molding Utilities

Space Heaters

The proposed space heaters will be fired on natural gas. Emission factors for NO_x, CO, PM, $PM_{2.5}$, PM_{10}, SO_2, and VOC from AP-42 Section 1.4 were used.

Heater	NO_x		SO_2		VOC		CO		$PM/PM_{2.5}$		Hexane		Tot. HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
249S	0.25	1.08	0.01	0.01	0.03	0.12	0.42	1.81	0.04	0.17	0.01	0.04	0.01	0.04
250S	0.25	1.08	0.01	0.01	0.03	0.12	0.42	1.81	0.04	0.17	0.01	0.04	0.01	0.04
251S	0.13	0.54	0.01	0.01	0.02	0.06	0.21	0.91	0.02	0.09	0.01	0.02	0.01	0.02
252S	0.13	0.54	0.01	0.01	0.02	0.06	0.21	0.91	0.02	0.09	0.01	0.02	0.01	0.02
253S	0.05	0.22	0.01	0.01	0.01	0.03	0.09	0.37	0.01	0.04	0.01	0.01	0.01	0.01
254S	0.05	0.22	0.01	0.01	0.01	0.03	0.09	0.37	0.01	0.04	0.01	0.01	0.01	0.01
Total[1]	**0.83**	**3.65**	**0.01**	**0.01**	**0.10**	**0.41**	**1.40**	**6.13**	**0.13**	**0.56**	**0.03**	**0.13**	**0.03**	**0.13**

[1]Total may not reflect the sum of the column above it due to rounding. ALL emissions are rounded **up** to the 1/100th in this table. e.g. 0.011 is rounded to 0.02. However, the "Total" row reflects the actual numbers and not a sum of the rounded numbers.

Cooling Tower

The plastics molding area will be supported by a cooling tower. The anticipated pollutants are PM, PM_{10}, and $PM_{2.5}$. Potential hourly emissions from the cooling towers are calculated using the methodology in AP-42 Section 13.4-1 and assumes a drift of 0.005%. $PM_{2.5}$ is conservatively assumed to equal PM.

Cooling Tower	$PM/PM_{10}/PM_{2.5}$	
	lb/hr	tpy
255S	0.40	1.80

Reciprocating Internal Combustion Engines

The Plastics Molding facility will utilize one generator engine that will be subject to the emission limitations in NSPS Subpart JJJJ. Emissions from the engine are calculated based on emissions factors provided by the manufacturer for NO_x, CO and VOCs. Emissions of SO_2 and PM are based on AP-42. Since this equipment will only operate during emergency situations and routine maintenance and testing, annual emissions are calculated based on 500 hours of operations.

Engine	NO_x		SO_2		VOC		$PM/PM_{2.5}$		CO		HAPs	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
256S	0.42	0.11	0.01	0.01	0.21	0.06	0.01	0.01	0.84	0.21	0.01	0.01

Based on the above tables, facility wide criteria emissions will be as follows:

	NO_x		SO_2		VOC		PM		PM_{10}		$PM_{2.5}$		CO	
	lb/hr	tpy	lb/hr	tpy	lbn/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
Scrubber Stack	1.06	4.60	2.1	1.65	1.80	4.24	6.90	23.70	6.90	23.70	6.90	23.70	0.06	0.24
Scrubber Preheater	0.78	0.03	0.01	0.01	0.09	0.01	0.12	0.01	0.12	0.01	0.12	0.01	1.30	0.05
Surfactant Manufact. Tanks	--	--	--	--	0.28	1.20	--	--	--	--	--	--	--	--
Truck Loading	--	--	--	--	0.02	0.06	--	--	--	--	--	--	--	--
Liq. Soap Outdoor Tanks	--	--	--	--	0.24	1.80	--	--	--	--	--	--	--	--
Liq. Soap Indoor Tanks	--	--	--	--	0.20	0.80	--	--	--	--	--	--	--	--
Liq Soap Packing & Capping	--	--	--	--	0.01	0.01	--	--	--	--	--	--	--	--
Rotoclones	--	--	--	--	33.23	33.42	4.57	20.06	4.57	20.06	4.57	20.06	--	--
RTO	0.24	1.10	0.01	0.01	213.5	8.00	0.02	0.07	0.02	0.07	0.02	0.07	1.30	5.80
Dry Prod Manuf. Out. Tanks	--	--	--	--	0.07	0.31	--	--	--	--	--	--	--	--
Dry Prod Manuf. In. Tanks	--	--	--	--	0.09	0.36	--	--	--	--	--	--	--	--
Baghouses/Fabric Filters	--	--	--	--	--	--	3.81	16.71	3.81	16.71	3.81	16.71	--	--
Dry Prod Manufact. Fugitives	--	--	--	--	2.0	8.70	--	--	--	--	--	--	--	--
Main Facility Boilers	11.30	49.50	0.10	0.41	0.55	2.49	1.17	5.00	1.17	5.00	1.17	5.00	5.70	25.00
Main Facility Cooling Towers	--	--	--	--	--	--	1.35	5.90	1.35	5.90	1.35	5.90	--	--
Main Facility Engines	14.10	3.51	0.05	0.02	0.29	0.07	0.29	0.07	0.29	0.07	0.29	0.07	2.75	0.70
Diesel Tanks	--	--	--	--	0.01	0.01	--	--	--	--	--	--	--	--
Process Heaters	0.90	3.90	0.02	0.05	0.10	0.44	0.14	0.60	0.14	0.60	0.14	0.60	1.51	6.60
Water Treatment	--	--	--	--	2.99	13.04	--	--	--	--	--	--	--	--
Ink & Glue Usage	--	--	--	--	0.14	0.59	--	--	--	--	--	--	--	--
Haul Roads	--	--	--	--	--	--	1.45	6.35	0.29	1.27	0.08	0.32	--	--
Plastics Molding Cyclones	--	--	--	--	--	--	0.08	0.35	0.08	0.35	0.08	0.35	--	--
Plastics Moldings Silos	--	--	--	--	--	--	0.80	3.50	0.80	3.50	0.80	3.50	--	--
Plastic Regrind	--	--	--	--	--	--	0.04	0.17	0.04	0.17	0.04	0.17	--	--
Plastic Molding Fugitives	--	--	--	--	2.07	9.07	--	--	--	--	--	--	--	--
Plastic Molding Space Heat.	0.83	3.65	0.01	0.04	0.10	0.41	0.13	0.56	0.13	0.56	0.13	0.56	1.40	6.13
Plastic Molding Cool. Tower	--	--	--	--	--	--	0.40	1.80	0.40	1.80	0.40	1.80	--	--
Plastic Molding Engines	0.42	0.11	0.01	0.01	0.21	0.06	0.01	0.01	0.01	0.01	0.01	0.01	0.84	0.21
Total	**29.63**	**66.40**	**2.31**	**2.20**	**257.99**	**85.09**	**21.28**	**84.86**	**20.12**	**79.78**	**19.91**	**78.83**	**14.86**	**44.73**

Facility Wide HAP emissions from the facility should be as follows:

HAP	tpy
Hexane	1.46
Ethylene Oxide	0.05
Formaldehyde	0.06
Vinyl Acetate	0.01
1,4 Dioxane	0.06
Hydrogen Chloride	0.02
Glycol Ether	0.17
Other Combustion HAPs	0.03
Total HAPs	1.86

REGULATORY APPLICABILITY

The following state and federal rules apply to the proposed facility.

STATE RULES

45CSR2 To Prevent and Control Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers.

The boilers at the Tabler Station facility meet the definition of fuel burning units in 45CSR2. Therefore they are subject to the PM limits of 45CSR§2-4.1.b.

Boiler	Size (mmbtu/hr)	Rule 2 Limit (lb/hr)	Emission Rate (lb/hr)
1	93	8.37	2.31
2	93	8.37	0.70
3	33	2.97	0.25

As can be seen from the above table, the boilers will meet the 45CSR2 limits.

45CSR6 Control of Air Pollution from Combustion of Refuse

The main requirement of 45CSR6 applicable to the Tabler Station facility is the PM emission limit from the RTO. 45CSR§6-4.1. limits PM from the RTO to 0.43 pounds per hour (based on the maximum flow rate to the RTO of 158.6 pounds per hour reported in the application). Actual PM emissions from the RTO should not exceed 0.02 pounds per hour. Therefore, the RTO will meet the requirements of 45CSR6.

45CSR7 To Prevent and Control Particulate Matter Air Pollution From Manufacturing Processes and Associated Operations

45CSR7 regulates PM emissions from manufacturing processes and associated operations. 45CSR§7-3, contains a 20% opacity limit from all process source operations. Section 45CSR7-4 and Table 45-7A set particulate emissions limits based on the total weight of all materials used by the facility, also known as the process weight rate. The different process areas at the Tabler Station facility qualify under different classifications as part of the rule. The surfactants area is a mineral acid producing area, subject to limits in Table 45-7B. The liquid soap and dry consumer laundry and cleaning products areas qualify as Type a facilities. The utilities area is covered under 45CSR2, and is exempt from this rule, according to 45CSR§10-10.1. The maximum allowable total stack emission rate for each area are shown in the following table.

Process Area	Process Weight Rate	Stack Emission Rate
Surfactants	NA	35 mg/m^3
Liquid Soap	> 600,000 lb/hr	50 lb/hr
Dry Consumer Products	> 600,000 lb/hr	50lb/hr

45CSR10: To Prevent and Control Air Pollution from the Emission of Sulfur Oxides

45CSR10 has requirements limiting SO emissions from "fuel burning units". The Tabler Station boilers are defined as a "fuel burning units". The applicable requirements are discussed below:

45CSR10 Fuel Burning Units - Section 3

The allowable combined sulfur dioxide (SO_2) emission rate for the three boilers, identified as a Type "b" fuel burning unit, per 45CSR10, Section 3.3.f (note that Berkeley county is in a Priority III region), is the product of 3.2 and the total design heat input of the three boilers in million Btu per hour. The maximum design heat input of the three boilers will be 219 mmBtu/Hr. Using the above equation, the 45CSR10 SO_2 emission limit of the three boilers will be 700.8 lb/hr.

The maximum potential combined hourly SO_2 emissions from the three boilers is estimated to be 0.6 lb/hr. This emission rate is far less than 1% of the 45CSR10 limit.

45CSR13 Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation

The proposed construction of the Tabler Station facility has a potential to emit in excess of six (6) lbs/hour and ten (10) TPY of a regulated pollutant and, therefore, pursuant to §45-13-2.24, the facility is defined as a "stationary source" under 45CSR13. Pursuant to §45-13-5.1, "[n]o person shall cause, suffer, allow or permit the construction . . . and operation of any stationary source to be commenced without . . . obtaining a permit to construct." Therefore, Procter & Gamble is required to obtain a permit under 45CSR13 for the construction and operation of the facility.

As required under §45-13-8.3 ("Notice Level A"), Procter & Gamble placed a Class I legal advertisement in a "newspaper of general circulation in the area where the source is . . . located." The ad ran on May 10, 2016 in *The Journal* and the affidavit of publication for this legal advertisement was submitted to the WVDAQ on May 19, 2016.

45CSR16: Standards of Performance for New Stationary Sources

45CSR16 incorporates by reference applicable requirements under 40 CFR 60. 40 CFR 60 Subpart Dc and Subpart IIII apply to the facility (see below under Federal Regulations).

45CSR30: Requirements for Operating Permits

45CSR30 provides for the establishment of a comprehensive air quality permitting system consistent with the requirements of Title V of the Clean Air Act. Because the facility is subject to 40CFR60 Subpart Dc, it is subject to 45CSR30. However, since the facility is taking limits to keep emissions of all pollutants below major source thresholds, it will be a minor (deferred) source under the rule.

45CSR34: Emission Standards for Hazardous Air Pollutants

45CSR34 incorporates by reference applicable requirements under 40 CFR 61, 40 CFR 63 and Section 112 of the Clean Air Act. 40 CFR 63 Subpart ZZZZ applies to the facility (see below under Federal Regulations).

FEDERAL RULES

40 CFR 60 Subpart Dc: Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Subpart Dc has requirements relating to limiting the emissions of Particulate Matter, and SO_2 from electric steam generating units. However, natural gas fired boilers are exempt from the emission standards. The following discusses the substantive applicable requirements of Subpart Dc relating to the three Tabler Statioin boilers.

Subpart Dc Applicability - Section §60.40c

Pursuant to §60.40c(a), the affected facility to which Subpart Dc applies is each steam generating unit that is capable of combusting 29 megawatts (100 million Btu/hour) heat input or less but greater than or equal to 2.9 megawatts (10 million Btu/hr) for which construction, reconstruction or modification is commenced after June 9, 1989. The proposed Procter & Gamble auxiliary boilers meet these requirements and are subject to the applicable requirements of Subpart Dc.

Subpart Dc Pollutant Emission Standards - Section §60.42c and §60.43c

Per §60.42c(a) and §60.43c(a), the emission standards only apply to steam generating units that burn coal or coal in combination with other fuels. Since the Tabler Station boilers will burn only natural gas , they are exempt from these emission standards.

Subpart Dc Notification Requirements - Section §60.48c(a)

Section §60.48c outlines the notification of construction and actual startup requirements to be followed to be in compliance with Subpart Dc. Procter & Gamble is subject to these requirements.

Subpart Dc Record-Keeping Requirements - Section §60.48c(f) and Section §60.48c(g)

Sections §60.48c(f) and (g) outline the fuel record-keeping requirements required to be followed to be in compliance with Subpart Dc. Procter & Gamble is subject to these requirements.

40 CFR 60, Subpart IIII Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Subpart IIII contains requirements relating to the performance of compression ignition engines. Procter & Gamble proposes to use two fire water pumps and four emergency generators that will be subject to Subpart IIII. Three of the generators will be used in the main facility and one will be used in the Suppliers Village area (Plastics Molding area). The following discusses the substantive applicable requirements of Subpart IIII relating to the Tabler Station facility.

Subpart IIII Applicability - Section §60.4200

Pursuant to §60.4200, compression ignition engines manufactured after July 11, 2005 are subject to the subpart. Therefore, Subpart IIII will be applicable to all six engines at the proposed Procter and Gamble Facility.

Subpart IIII Emission Standards - Section §60.4204 and §60.4205

§60.4205 sets the following standards for the engines (all standards in g/kW-hr):

Engine	NMHC + NO_x	CO	PM
Fire Water Pump Engine (203)	4.0	--	0.20
Fire Water Pump Engine (204)	4.0	--	0.20
Emergency Generator (205)	4.0	3.5	0.20
Emergency Generator (206)	4.0	3.5	0.20
Emergency Generator (207)	4.0	3.5	0.20
Emergency Generator (256)	4.7	5.0	0.40

§60.4211(c) requires engines like those above to be certified by the manufacturer to meet the applicable standards.

Subpart IIII Fuel Requirements - Section §60.4207

Since all six engines have a displacement of less than 30 liters per cylinder, per §60.4207 (b), they must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel.

40 CFR 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ Applicability - §63.6585

Pursuant to §63.6585, stationary reciprocating internal combustion engines that are not being tested at a stationary RICE test cell/stand are subject to Subpart ZZZZ. Therefore, Subpart ZZZZ will be applicable to the fire water pump engines and the emergency generators at the proposed Procter & Gamble Plant.

Subpart ZZZZ Requirements - §63.6590

Pursuant to §63.6590(c)(1) new stationary RICEs at area sources of HAPs must meet the requirements of 40 CFR 60 Subpart IIII (see previous discussion). No other requirements apply to such engines.

NONAPPLICABILITY DETERMINATIONS

40 CFR 60 Subpart H: Standards of Performance for Sulfuric Acid Plants

Subpart H applies to "Sulfuric acid production units" and defines such units as "any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge, **but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds**" (emphasis added).

In their application, P&G states "The sulfuric acid making is used primarily as a means of preventing sulfur dioxide emissions from entering the atmosphere..."

40 CFR 60 Subpart Kb: Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984

Subpart Kb regulates storage vessels with a design capacity greater than or equal to 75 cubic meters (m^3) that store volatile organic liquids. Storage vessels with a capacity greater than or equal to 151 cubic meters (m^3) storing a liquid with a maximum true vapor pressure, excluding water, less than 3.5 kilopascals (kPa) or with a capacity greater than or equal to 75 m^3 but less than 151 m^3 storing a liquid with a maximum true vapor pressure less than 15.0 kPa are exempt from the requirements of this rule.

The tanks at the Tabler Station facility meet the exemption requirements of this rule. Therefore, the Tabler Station facility is exempt from NSPS Kb.

40 CFR 60 Subpart Vva: Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006

Per §60.480a(b), Subpart VVa applies to any affected facility that commences construction, reconstruction, or modification after November 7, 2006, where an affected facility is the group of all equipment within a process. The definition of "process unit" and "equipment" are as follows per §60.480a(f)(2):

"Process unit means components assembled to produce, as intermediate or final products, one or more of the chemicals listed in § 60.489 of this part. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.

Equipment means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, and flange or other connector in VOC service and any devices or systems required by this subpart."

The only chemical produced either as a final product or as an intermediate from the list given in §60.489 of this part at the Tabler Station facility is dioxane, an unintended byproduct produced during the surfactant making process at a very low concentration. Therefore, P&G has a potential "process unit" as defined under NSPS Vva. For purposes of compliance with NSPS VVa, the "affected facility" is the group of all equipment within the surfactants process unit. This process unit will be constructed after November 7, 2006. As such, the group of all equipment in the surfactants process unit is subject to the requirements codified in Subpart VVa. However, per 40 CFR 60.480a(d), "Any affected facility that has the design capacity to produce less than 1,000 Mg/yr (1,102 ton/yr) of a chemical listed in §60.489 is exempt from §§60.482–1a through §60.482–11a."

The P&G surfactant making process produces dioxane in extremely small quantities as an unintended byproduct. Less than 1,000 Mg/year of dioxane is produced; therefore the Tabler Station facility qualifies for the first exemption. As such, P&G does not operate an "affected facility" under Subpart VVa and, as such, P&G is not subject to the requirements listed in §§60.482-1a through 60.482–11a. However, P&G is required to keep records onsite to document the exemption.

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

Natural gas fired boilers are exempt from the requirements of Subpart JJJJJJ per §63.11195(e).

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

This section provides general toxicity information for those pollutants not classified as "criteria pollutants." Criteria pollutants are defined as Carbon Monoxide (CO), Lead (Pb), Oxides of Nitrogen (NO_x), Ozone, Particulate Matter (PM), and Sulfur Dioxide (SO_2). These pollutants have National Ambient Air Quality Standards (NAAQS) set for each that are designed to protect the public health and welfare. Other pollutants of concern, although designated as non-criteria and without national concentration standards, are regulated through various federal and state programs designed to limit their emissions and public exposure. These programs include federal source-specific HAP limits promulgated under 40 CFR 61 (NESHAPS) and 40 CFR 63 (MACT). Potential applicability to these programs were discussed above under REGULATORY APPLICABILITY.

The majority of non-criteria regulated pollutants fall under the definition of Hazardous Air Pollutants (HAPs). All non-criteria regulated pollutants proposed to be emitted by the facility with the exception of sulfuric acid mist (H_2SO_4) are defined as Hazardous Air Pollutants (HAPs). HAPS and H_2SO_4 will be discussed separately below.

HAPs

Section 112(b) of the Clean Air Act (CAA) identifies 188 compounds as pollutants or groups of pollutants that EPA knows or suspects may cause cancer or other serious human health effects. The combustion of both natural gas and fuel oil has the potential to produce HAPs. However, the potential HAP emissions from the facility are below the levels that define a major HAP source. Therefore, the facility is considered a minor (or area) HAP source, and no source-specific major source NESHAP or MACT standards apply. The following table lists each HAP potentially emitted by the facility in excess of 20 pounds/year (0.01 tons/year) and the carcinogenic risk associated thereto (as based on analysis provided in the Integrated Risk Information System (IRIS)):

HAP	Type	Known/Suspected Carcinogen	Classification
Formaldehyde	VOC	Yes	B1 - Probable Human Carcinogen
Hexane	VOC	No	D-Not Classifiable
Etylene Oxide	VOC	Yes	B1 - Probable Human Carcinogen
Vinyl Acetate	VOC	No	Not Classified
1,4 Dioxane	VOC	Yes	B2 - Probable Human Carcinogen
Glycol Ethers	VOC	No	Not Classified

All HAPs have other non-carcinogenic chronic and acute effects. These adverse health affects may be associated with a wide range of ambient concentrations and exposure times and are influenced by source-specific characteristics such as emission rates and local meteorological conditions. Health impacts are also dependent on multiple factors that affect variability in humans such as genetics, age, health status (e.g., the presence of pre-existing disease) and lifestyle. As stated previously, there are no federal or state ambient air quality standards for these specific chemicals. The regulatory applicability of any potential NESHAP or MACT to the Tabler Station Facility was discussed above. For a complete discussion of the known health effects refer to the IRIS database located at www.epa.gov/iris.

Sulfuric Acid Mist (H_2SO_4)

The compound of H_2SO_4 is regulated under 45CSR14 with a significance level that can trigger BACT for each source that contributes H_2SO_4 emissions. However, since the Tabler Station Facility will not be a major source as defined in 45CSR14 no BACT analysis was triggered. H_2SO_4 is not represented in the IRIS database and is not listed as a HAP. Concerning the carcinogenity of sulfuric acid, the Agency for Toxic Substances and Disease Registry (ATSDR) states that "the ability of sulfuric acid to cause cancer in laboratory animals has not been studied. The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans. IARC has not classified pure sulfuric acid for its carcinogenic effects."

AIR QUALITY IMPACT ANALYSIS

Because this application addresses the construction of a facility which is not defined as major, per 45CSR14, no modeling was performed.

MONITORING OF OPERATIONS

The following monitoring, recordkeeping and testing will be required by the permit:

Scrubber Stacks

* The applicant shall monitor and record pH of the scrubber liquor on an hourly basis.

* The applicant shall perform an initial stack test to determine compliance with SO_2, VOC and PM emissions.

All Tanks

* The applicant shall monitor and record the substance (and it's associated vapor pressure) stored in each tank.

Truck Loading and Unloading

* The applicant shall monitor and record the total amount of precipitated acid mix (PAM) and surfactant loaded out into trucks, on at least a monthly basis.

Finished Product Packing and Capping

* The applicant shall monitor and record the total amount of Soap A and B packaged, on at least a monthly basis.

Rotoclones

* The applicant shall monitor and record the pressure drop across each rotoclone on at least a weekly basis.

* The applicant shall perform initial stack tests on at least one Liquid Soap A and one Liquid Soap B rotoclone to determine compliance with the VOC emission limit.

* The applicant shall monitor and record the amount of liquid soap processed through equipment serviced by each rotoclone.

Regenerative Thermal Oxidizer

* The applicant shall perform an initial stack test on the RTO to determine compliance with VOC emissions.

* The applicant shall monitor and record the internal temperature of the RTO on at least an hourly basis.

All Baghouses/Fabric Filters

* The applicant shall monitor and record the pressure drop across each baghouse on at least a weekly basis.

Dry Consumer Products A Additive Fugitives

* The applicant shall monitor and record the maximum vapor pressure of any additive or perfume used.

All Boilers

* The applicant shall monitor and record the amount and type of fuel consumed by each boiler on at least a monthly basis.

* The applicant shall perform monthly visible emissions checks.

All Cooling Towers

* The applicant shall monitor and record the total dissolved solids (via conductivity or lab testing) on at least a monthly basis.

All Engines

* The applicant shall monitor and record the number of hours of operation of each Reciprocating Internal Combustion Engine (RICE) on at least a monthly basis.

* The applicant shall monitor and record the amount of fuel used by each RICE on at least a monthly basis.

* The applicant shall monitor and record the sulfur content in the fuel oil consumed by each RICE.

Cooling Tower/Boiler Feedwater/Wastewater Pretreatment Chemicals

* The applicant shall monitor and record the amount of any water pretreatment chemicals used.

* The applicant shall monitor and record the VOC and HAP content of any water pretreatment chemicals used.

Ink and glue Usage

* The applicant shall monitor and record the amount of ink and glue used at the facility on at least a monthly basis.

Plastics Molding Cyclones

* The applicant shall monitor and record the pressure drop across each cyclone on at least a weekly basis.

Plastics Molding Silos

* The applicant shall monitor and record the amount of plastic pellets transferred to the storage silos on at least a monthly basis.

Plastic Molding Regrind

* The applicant shall monitor and record the amount of plastic reground on at least a monthly basis.

Plastic Molding Fugitives

* The applicant shall monitor and record the amount of isopropyl alcohol and parts washing cleaning solvent used.

RECOMMENDATION TO DIRECTOR

Information supplied in the application indicates that compliance with all applicable regulations will be achieved. Therefore it is the recommendation of the writer that permit R13-3316 for the construction of a consumer products production facility near Martinsburg, in Berkeley County, be granted to Procter and Gamble Manufacturing Company.

Steven R. Pursley, PE
Engineer

November 2, 2016