TECHNICAL EVALUATION
&
PRELIMINARY DETERMINATION

APPLICANT

St. Marks Powder, Inc.
Post Office Box 222
St. Marks, Florida 32355

St. Marks Powder
Facility ID No. 1290003

PROJECT

Project No. 1290003-023-AC
Application for Title V Air Construction Permit
Project Name: Production Increase

COUNTY

Wakulla County, Florida

PERMITTING AUTHORITY

Florida Department of Environmental Protection
Waste Management/Air Resources Program
Northwest District Office
160 W. Government Street, Suite 308
Pensacola, Florida 32502-5740

October 3, 2013

1. GENERAL PROJECT INFORMATION

Air Pollution Regulations

Projects at stationary sources with the potential to emit air pollution are subject to the applicable environmental laws specified in Section 403 of the Florida Statutes (F.S.). The statutes authorize the Department of Environmental Protection (Department) to establish regulations regarding air quality as part of the Florida Administrative Code (F.A.C.), which includes the following applicable chapters: 62-4 (Permits); 62-204 (Air Pollution Control – General Provisions); 62-210 (Stationary Sources – General Requirements); 62-212 (Stationary Sources – Preconstruction Review); 62-213 (Operation Permits for Major Sources of Air Pollution); 62-296 (Stationary Sources - Emission Standards); and 62-297 (Stationary Sources – Emissions Monitoring). Specifically, air construction permits are required pursuant to Rules 62-4, 62-210 and 62-212, F.A.C.

In addition, the U.S. Environmental Protection Agency (EPA) establishes air quality regulations in Title 40 of the Code of Federal Regulations (CFR). Part 60 specifies New Source Performance Standards (NSPS) for numerous industrial categories. Part 61 specifies National Emission Standards for Hazardous Air Pollutants (NESHAP) based on specific pollutants. Part 63 specifies NESHAP based on the Maximum Achievable Control Technology (MACT) for numerous industrial categories. The Department adopts these federal regulations on a quarterly basis in Rule 62-204.800, F.A.C.

Glossary of Common Terms

Because of the technical nature of the project, the permit contains numerous acronyms and abbreviations, which are defined in Appendix A of this permit.

Facility Description and Location

St. Marks Powder, Inc. is an existing propellant manufacturing plant, which is categorized under Standard Industrial Classification Code No. 2892. The facility is located at the intersection of U.S. 98 and S.R. 363, in Wakulla County, Florida. The UTM coordinates of the existing facility are Zone 16, 767.6 km East and 3342.1 km North. This site is in an area that is in attainment (or designated as unclassifiable) for all air pollutants subject to state and federal Ambient Air Quality Standards (AAQS).

Facility Regulatory Categories

- The facility is not a major source of hazardous air pollutants (HAP).
- The facility has no units subject to the acid rain provisions of the Clean Air Act.
- The facility is a Title V major source of air pollution in accordance with Chapter 213, F.A.C.
- The facility is a major stationary source in accordance with Rule 62-212.400, F.A.C. for the Prevention of Significant Deterioration (PSD) of Air Quality.

Project Description

St. Marks Powder (SMP) proposes to expand the manufacturing process to increase production of propellant from 31.1 MMlbs to 34.5 MMlbs of product. The proposed project will impact the nitrocellulose (NC) and ethyl acetate (EA) stream flows throughout the facility. Table 1 summarizes the modified or affected emission units and outlines any important stream flow changes due to the project.

TABLE 1
SUMMARY OF PRODUCT INCREASE PROJECT AND EMISSION INVENTORY UPDATES
PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

Source ID	Source Description	Modified/ Affected	Comments
EU011	Steam Boilers Nos. 1 and 2	√	Affected. Will have approximately a 10% increase in steam use, however, no modification to accommodate incremental steam usage (PTE calculations show enough room to accommodate changes)
EU012	Propellant Surface Coating Operations	√	Affected. Will have a 10% increase in throughput to surface coating operations, however, no modifications necessary to accommodate changes).
EU013	Vacuum Pump Exhaust	√	Increase to actual operation of production impregnation vacuum pump. However, PTE emissions do not need to be revised to accommodate the changes in hours of operation. The calculation methodology for the vacuum pump has been revised (only for production impregnation) to show some control efficiency due to the stream mixing with water solution. This calculation update is not a project change, therefore, the emissions reductions will not be taken as credit.
NA	Stream Flows	√	A new stream, "Stream 26", is being added to recycle the propellant impregnation vacuum pump exhaust. This solvent currently is being sent to the WWTP. With this change, it is assumed that solvent will be sent to the stripper (recycled) 80% of the time, and will continue to overflow to the WWTP 20% of the time. There will be an associated emission reduction from the WWTP with this change; however, we are not performing a netting analysis with this project so the reduction (about 2 tpy) is documented separately for future use if needed.
NA	Install larger Solvent Condenser for "B" Coating Still, larger Solvent Dryer Condenser, replace C/D Flash Evaporator Condenser	√	Modified units. No emissions at the source but will affect other downstream units (EU013, EU015, EU019). An increase of 10% through C/D Evaporator is worst case (over throughput increase at A/B Evaporator).
EU014	Fugitive Emissions (Equipment count, cooling towers, roads, WWTP, and Propellant recovery losses)	√	Modified sources: Increased size solvent dryer cooling tower (from 680 to 860 gpm), WWTP (addition of new package WWTP and 10% increase to concentrations of EA and IPA). Affected sources: Haul roads (increase in vehicle miles traveled) and fugitive equipment leaks (revised equipment count). There will be no impact to propellant recovery losses (SPD is not affected). Note: With the addition of Stream 26, EA to the WWTP will be reduced. This reduction has been documented in the future actual detailed calculations, however, it is not counted for in the PSD analysis.
EU015	Process Vessel Loading Losses	√	Modified: New Lacquer Hold Tank. Affected: 10% increase from Streams 1, 9, 10, and 73 (includes increase to batch still as well). No impact to propellant recovery (SPD not affected by project).
EU016	Non-Condensable Vents		No impact (NCG vents not expected to increase as a result of the project)
EU017	Propellant Dryer Exhausts	√	Modified. Modifications proposed to the South Dryer Dewater Feeder. Current emissions estimates use one typical drying zone. The calculations have been updated to include both the North and South Dryer dewater feeders and typical drying zones. The flow has been spit equally between both dryers. This change will show an increase in particulate matter.
EU018	Lacquer Preparation Kettle Loading Losses	√	Affected. Increases because of increases from Streams 1, 13, and 25.
EU019	Solvent Storage Tanks	√	Affected and Modified: Increase due to 10% increase in stream flow values as well as the increase in size for the North/South NG Tanks, inclusion of the new Spent Acid Tank (NG; 409-024), and addition of a new tank for the Stream 26 change.
EU021	Tray Dryers, Pellet Screens, and Graphite Bags	√	Affected: Increased due to increase in mass of LD and HD batch sizes.
EU022	Propellant Pneumatic Conveyors	√	Affected: Increased due to increase in mass of LD and HD batch sizes.
EU023	Propellant Grinder		No Impact to EU023 as SPD is not affected
EU024	Pilot Propellant Surface Coating Operations		Project will not impact the pilot surface coating operations
EU025	Six Existing Diesel Powered Emergency CI RICE	√	The existing WWTP Emergency Blower (122 hp) is being removed from EU 025. Also will revise calculations to reflect most recent permit break out of engines per EU. The source description will be revised to "Five Existing Diesel Powered Emergency CI RICE"
EU026	Two New Diesel Powered Emergency CI RICE	√	A new 200 hp engine will be added to EU 026. Also will revise calculations to reflect most recent permit break out of engines per EU. The source description will be revised to "Three New Diesel Powered Emergency CI RICE"
EU027	Two New Gasoline Powered Emergency SI RICE		Not affected by project, but will revise calculations to reflect most recent permit break out of engines per EU.

NA	Hooded Process Machinery	√	Affected. Will see a 10% increase in throughput with the proposed project
NA	Plant Painting		Project will not impact the painting operations
NA	Process Building Ventilation		Project will not impact the emissions expected from the process Building Ventilation.
NA	Open Burn Unit		Not affected by project, but have revised calculations to reflect the recent OBU changes.
NA	Surface Coating Manufacture	√	Affected. Will see a 10% increase in throughput of IPA with the proposed project.
NA	Recirculated Water System	√	Affected. Increases because of increases from Streams 7, 8, and 19.
NA	Test Ranges	√	Affected. Will see a ~10% increase in testing performed.
NA	Chemical Laboratories	√	Affected. Will see a ~10% increase in lab functions performed.
NA	Acid Mists	√	Affected. Will see a ~10% increase in acid use at NG Manufacturing and the Boiler with the proposed project.
NA	Petroleum Storage		Project will not impact petroleum storage operations
NA	Arc Welding		Project will not impact arc welding operations
NA	Lacquer Filter Brush Tanks	√	Affected. Will see a ~10% increase in emissions from solvent use in the Lacquer Filter Brush Tanks.
NA	Equipment Decontamination	√	Affected. Will see a ~10% increase in propane use in the equipment decontamination process.

Changes to the Existing Title V Permit No. 1290003-021-AV

Change to EU-011: - Steam Boilers Nos. 1 and 2

No equipment or operational changes are proposed for EU-011. However, SMP is requesting a change to the compliance testing requirements for EU-011 to reflect the option for a "conditional test" for opacity on an annual basis if no fuel oil is fired in the previous fiscal year. SMP would still perform at least one VE test during the permit term. The boilers in EU-011 routinely burn natural gas, and currently burn fuel oil only during periods of natural gas curtailment and for annual compliance testing.

EU 011 includes two Cleaver-Brooks steam boilers (Nos. 1 & 2) each with a maximum heat input of 33.45 MMBtu/hr. These boilers are permitted to burn natural gas and No. 2 or No. 6 fuel oil with a maximum sulfur content of 2.5%, by weight. These boilers were initially permitted by permit AC65-42779, issued July 9, 1981, and predate requirements of 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, and Rule 62-296.406, F.A.C., Fossil Fuel Steam Generators with Less Than 250 Million Btu Per Hour Heat Input.

Because the boilers are primarily fired with natural gas and burn fuel oil only during periods of natural gas curtailment, the annual compliance testing requirements for EU-011 will be changed as follows.

Annual Compliance Tests Required. During each federal fiscal year (October 1st to September 30th) when fuel oil is fired in the previous year for any reason other than natural gas curtailment, each boiler shall be tested to demonstrate compliance with the emissions standards for visible emissions (VE). The test period shall be for a minimum of 60 minutes. The fuel sulfur content and heat input for each boiler shall be recorded during the visible emissions tests and included in the test report. In addition to the annual compliance test specified above, a compliance test for VE shall be scheduled prior to the facility's Title V permit renewal application due date so the results can be included with the submission of the application. If the emissions unit is being fired with natural gas, and the unit has not operated using fuel oil in the previous year, except during periods of natural gas curtailment, then compliance testing can be performed while burning natural gas; else testing shall be performed while firing fuel oil. Notification of compliance testing and completed test reports may be submitted by electronic mail to nwdair@dep.state.fl.us.
[Rules 62-210.300(2)(a) and 62-297.310(7)(a), F.A.C.; and Application No. 1290003-023-AC]

Change to EU-012: - Propellant Surface Coating Operations

SMP proposes to increase to the maximum production rates for the North and South Coaters for both the VOC and PM modes.

Emissions unit EU-012 consists of a North Coater, a South Coater, and the North Sweetie Barrel. The coaters function independently of each other. Each coater operates in mutually exclusive modes: A regulated mode, called the VOC mode, where a slurry of inorganic salts suspended in isopropyl alcohol (IPA) is applied; and a non-regulated mode, called the PM mode, where a dry, particulate, antistatic material is applied to the powder. In the PM mode, either ground salts suspended in water are applied, or no salts are applied. Propellant processing rates may be higher in the PM mode than in the VOC mode. Single salt coatings or double salt coatings can be applied in the VOC mode.

As part this project, the maximum production rates for both the PM and the VOC modes will increase. The VOC mode single salt process rate will increase from 3,600 lb/hr to 4,500 lb/hr. However, the VOC mode double salt process rate will remain at 3,600 lb/hr. Because there are very few coatings that require a double salt, there is no need to run higher rates for the double salt coatings. The PM mode process rate will increase from 4,000 lb/hr to 4,500 lb/hr. The maximum VOC input rates will not be changed by this project.

The permitted capacity in the existing Title V permit will be changed as follows.

Permitted Capacity. The maximum allowable propellant production rate for each coating operation is as follows:

Operation in VOC Mode	**Type**	***Maximum Production Rate in VOC Mode***	**Maximum VOC Input Rate**	**Emission point**
North Coater	Continuous	*4500 lb/hr*	160 lb/hr	12.1
South Coater	Continuous	*4500 lb/hr*	160 lb/hr	12.2
North Sweetie Barrel	Batch (≥3hr)	*600 lb/hr (1800 lb/batch)*	67 lb/hr	12.3
Totals		***9,600 lb/hr***	**387 lb/hr**	

Operation in PM Mode	**Type**	***Maximum Production Rate in PM Mode***	**Maximum VOC input rate**	**Emission point**
North Coater	Continuous	*4500 lb/hr*	0 lb/hr	12.1
South Coater	Continuous	*4500 lb/hr*	0 lb/hr	12.2
North Sweetie Barrel	Batch (≥30 min cycle)	*3600 lb/hr (1800 lb/batch)*	0 lb/hr	12.3
Totals		***12,600 lb/hr***	**0 lb/hr**	

Changes to the Unregulated Emissions units (See Appendix U)

Unregulated Emissions Units and Activities (see Appendix U, List of Unregulated Emissions Units and/or Activities)	
013	Vacuum Pump Exhausts
014	Fugitive Emissions
015	Process Vessel Loading Losses
017	Propellant Dryer Exhausts
018	Lacquer Preparation Kettle Loading Losses
019	Solvent Storage Tanks

Change to EU-013: - Vacuum Pump Exhausts
VOC emissions from vacuum pump at the Impregnation Operation, Batch Still, Pilot Plant, and Hybrid Propellant Formation. Exhaust from vacuum pumps used in the vacuum distillation portion of the propellant process, both full scale and pilot operations. With this application, the calculation methodology is being revised for the Impregnation Operations (release point 13.1) to reflect the solvent that is dissolved into the water portion of the vacuum pump stream. This calculation change will reduce emission estimates. Hours of operation for the Hybrid Propellant Formation (release points 13.4 and 13.5) are also being revised to reflect maximum operation (i.e., 4 months).

Change to EU-014: - Fugitive Emissions
Fugitive VOC emissions from valves, connections, seals, drains, pipes, wastewater treatment and sampling points. Fugitive PM emissions from process cooling towers and vehicular traffic. With the proposed project the following changes are requested: increase the VMT on facility roads, increase the flow through one cooling tower cell, change the count for fugitive leaks, and include a reconfiguration of the existing WWTP. The WWTP reconfiguration will convert an existing digester to a Package WWTP. 25% of the current WWTP flow will go through the new Package WWTP, and the remaining 75% will go through the existing aeration tank.

Change to EU-015: - Process Vessel Loading Losses
VOC emissions from filling/loading the Lacquer Hold Tank, both Impregnation vessels, the Batch Still, Solution Tank and Evaporator. This emission unit currently consists of the following tanks: Lacquer Hold, Batch Still – NG Add, Batch Still – Solution, and Impregnation – NG (nitroglycerine). Fugitive losses from propellant recovery are also included. A new lacquer hold tank is being added as part of the proposed project.

Change to EU-017: - Propellant Dryer Exhausts
VOC and PM emissions from the operation of the North Propellant Dryer and the South Propellant Dryer. The South Dryer Dewater feeder is being replaced with a larger dewater feeder that is able to handle more air flow.

Change to EU-018: - Lacquer Preparation Kettle Loading Losses
VOC and PM emissions from the loading of the Lacquer Preparation Kettles A-D. The Lacquer Preparation Kettle Loading Losses are affected by the project changes due to an increase in ethyl acetate and nitrocellulose through the process. This emission unit consist of Lines A/B, Line C, Line D, and propellant recovery fugitive losses.

Change to EU-019: - Solvent Storage Tanks
VOC emissions from breathing and working losses from the storage and handling of process solvent, petroleum storage, and propellant recovery fugitive losses. Modifications due to the project include the replacement of the North/South NG Tanks (445-041/445-141), replacement of the Spent Acid Tank (NG; 409-024), and the addition of a new hold tank for the new Stream 26.

Summary of proposed equipment changes to the unregulated emissions units follows.

a. Replace the Solvent Condenser for the "B" Coating Still with a larger condenser.
This proposed change will affect emissions from emission unit EU-015, emission points EP-15.2 and EP-15.3; and EU-019, EP-19.4 and EP-19.5.
b. Replace the Solvent Dryer Condenser with a larger condenser. Affects emissions from EU-019, EP-19.2.
c. Replace the C/D Flash Evaporator Condenser with a larger condenser.
(No units are directly associated with this change other than the non-condensable vents; however, emissions from the non-condensable vents are not expected to increase as a result of this project.)
d. Replace the fan motor, driveshaft, gear reducer, cooling water line and pump impeller, and increase blade pitch for the existing Solvent Drying Cooling Tower. (The cooling water flow rate will increase from 680 to 860 gpm.). These changes will affect emissions from EU-014, EP-14.2.
e. Add a new package Wastewater Treatment Plant. Affects emissions from EU-014, EP-14.8.
f. Install a new Lacquer Hold Tank No. 2. Affects emissions from EU-015, EP-15.7.
g. Replace South Dryer Dewater Feeder with larger feeder. Affects emissions from EU-017, EP-17.2.
h. Replace the North NG Tank with a larger tank. Affects emissions from EU-019, EP-19.7.
i. Replace the South NG Tank with a larger tank. Affects emissions from EU-019, EP-19.8.
j. Install new Spent Acid Tank. (No effect on emissions - spent acid has no VOC releases).
k. Install a new solvent recycle Hold Tank for new Stream 26.
This change will affect emissions from EU-019, EP-19.1, and EU-013, EP-13.1.

Emissions Unit No. 25: Five Existing Diesel Powered Emergency CI RICE.

SMP proposes to remove the existing WWTP Emergency engine (122 hp Hoffman MD746) from service in EU 025 as shown below.

Facility Location	Engine Type	Engine Manufacturer	Engine Model No.	Mfgr/ Model Year	Kw	Brake hp	Mfgr. Cert.
WWTP	Emergency	Onan	06152TA-A	1986	300	408	No
~~*WWTP*~~	~~*Emergency*~~	~~*Hoffman*~~	~~*MD746*~~	~~*1969*~~	~~*90*~~	~~*122*~~	~~*No*~~
Wet Line	Emergency	Belts Dayco	514074705-3251	1969	425	578	No
Magazine Road	Fire Pump	Wisconsin	VG4D	1969	12	17	No
Central Pump House	Fire Pump	Caterpillar	3208T	1994	173	235	No
Central Pump House	Fire Pump	Caterpillar	3208T	1996	173	235	No

Emissions Unit No. 26: Three New Diesel Powered Emergency CI RICE.

SMP proposes to add a new diesel powered emergency engine (less than 560 Kw) to EU-026 as shown below.

Facility Location	Engine Type	Engine Mfg	Engine Model No.	Kw	Brake hp	Mfg/Model Year
Medical/Security	Emergency	John Deere	4024HF285	40	54	2013
Central Pump House	Fire Pump	Cummins	QSB6.7-F	182	244	2010
WWTP	*Emergency*	*TBD*	*TBD*	*TBD (Represented as <560)*	*TBD*	*TBD (Represented as "new" per NSPS Subpart IIII)*

Processing Schedule

September 15, 2014 Received Application for Title V Air Construction Permit.

2. PSD APPLICABILITY

General PSD Applicability

For areas currently in attainment with the state and federal AAQS or areas otherwise designated as unclassifiable, the Department regulates major stationary sources of air pollution in accordance with Florida's PSD preconstruction review program as defined in Rule 62-212.400, F.A.C. Under preconstruction review, the Department first must determine if a project is subject to the PSD requirements ("PSD applicability review") and, if so, must conduct a PSD preconstruction review. A PSD applicability review is required for projects at new and existing major stationary sources. In addition, proposed projects at existing minor sources are subject to a PSD applicability review to determine whether potential emissions *from the proposed project itself* will exceed the PSD major stationary source thresholds. A facility is considered a major stationary source with respect to PSD if it emits or has the potential to emit:

- 250 tons per year or more of any regulated air pollutant; or
- 100 tons per year or more of any regulated air pollutant and the facility belongs to one of the following 28 PSD-major facility categories: fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), Kraft pulp mills, portland cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants, chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels, taconite ore processing plants, glass fiber processing plants and charcoal production plants.

Once it is determined that a project is subject to PSD preconstruction review, the project emissions are compared to the "significant emission rates" defined in Rule 62-210.200, F.A.C. for the following pollutants: carbon monoxide (CO); nitrogen oxides (NO_X); sulfur dioxide (SO_2); particulate matter (PM); particulate matter with a mean particle diameter of 10 microns or less (PM_{10}); volatile organic compounds (VOC); lead (Pb); fluorides (Fl); sulfuric acid mist (SAM); hydrogen sulfide (H_2S); total reduced sulfur (TRS), including H_2S; reduced sulfur compounds, including H_2S; municipal waste combustor organics measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans; municipal waste combustor metals measured as particulate matter; municipal waste combustor acid gases measured as SO_2 and hydrogen chloride (HCl); municipal solid waste landfills emissions measured as non-methane organic compounds (NMOC); and mercury (Hg). In addition, significant emissions rate also means any emissions rate or any net emissions increase associated with a major stationary source or major modification which would construct within 10 kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$, 24-hour average.

If the potential emission exceeds the defined significant emissions rate of a PSD pollutant, the project is considered "significant" for the pollutant and the applicant must employ the Best Available Control Technology (BACT) to minimize the emissions and evaluate the air quality impacts. Although a facility or project may be *major* with respect to PSD for only one regulated pollutant, it may be required to install BACT controls for several "significant" regulated pollutants.

PSD Applicability for Project

The baseline actual emissions (BAE) period is based on the average of the worst case 24 month period over the last 10 years. Baseline emissions for most sources for this analysis are based on 2012 and 2013 data. Where actual input data was not available, baseline emissions were set equal to potential emissions.

"Capable of being accommodated" (COA) values are typically based on the worst case month, annualized. The highest 12-month rolling average was determined to be June 2013 through May 2014, and was chosen as the most representative value for the number of NC batches possible during the baseline period.

The future projected actual emissions (PAE) are based on the COA values plus any project related emissions changes.

A summary of PSD emissions increases for the project is presented in Table 2.

TABLE 2
SUMMARY OF PSD COMPOUND EMISSIONS INCREASES BASED ON CAPABLE OF ACCOMODATING TO FUTURE PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

		Emissions (TPY)								
EU ID	**Emission Unit Description**	**CO**	**NOx**	**PM**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**VOC**	**Lead**	**GHGs[d]**
011	Steam Boilers Nos. 1 and 2	10.5	12.6	1.0	1.0	1.0	0.3	0.7	6.5E-05	15,101.3
012	Propellant Surface Coating Operations	--	--	--	--	--	--	9.0	--	--
025	Six Existing Diesel Powered Emergency CI	0.26	1.23	0.09	0.09	0.09	0.08	--	--	27.6
026	Two New Diesel Powered Emergency CI RICE	0.04	0.05	0.00	0.00	0.00	0.01	--	--	4.8
013	Vacuum Pump Exhaust	--	--	--	--	--	--	28.8	--	--
014	Fugitive Emissions	--	--	21.2	15.3	14.2	--	218.8	--	--
015	Process Vessel Loading Losses	--	--	--	--	--	--	3.8	--	--
017	Propellant Dryer Exhaust	--	--	29.4	9.1	--	--	30.7	--	--
018	Lacquer Preparation Kettle Loading Losses	--	--	6.3	--	--	--	23.6	--	--
019	Solvent Storage Tanks	--	--	--	--	--	--	24.8	--	--
021	Tray Dryers, Pellet Screens, and Graphite Bags	--	--	0.5	0.5	--	--	0.9	--	--
022	Propellant Pneumatic Conveyors	--	--	3.7	3.7	--	--	--	--	--
023	Propellant Grinding	--	--	--	--	--	--	0.9	--	--
	Hooded Process Machinery	--	--	3.5	0.9	--	--	3.3	--	--
	Surface Coating Manufacture	--	--	--	--	--	--	0.3	--	--
	Recirculated Water System	--	--	--	--	--	--	2.1	--	--
	Test Ranges	1.1	4.2E-02	0.1	0.1	0.1	6.6E-05	--	6.3E-03	--
	Chemical Laboratories	--	0.4	--	--	--	--	2.8	--	--
	Acid Mists	--	--	0.8	0.8	--	--	--	--	--
	Lacquer Filter Brush Tanks	--	--	--	--	--	--	0.1	--	--
	Equipment Decontamination	1.1E-03	8.0E-03	2.3E-04	2.3E-04	2.3E-04	5.7E-06	2.9E-04	--	--
Total Baseline Emissions (Average 2012-2013)[a]		***11.9***	***14.3***	***66.4***	***31.3***	***15.3***	***0.4***	***350.6***	***0.006***	***15,133.691***
Capable of Accommodating During Baseline		**11.9**	**14.3**	**70.2**	**32.5**	**15.3**	**0.4**	**351.6**	**0.006**	**15,133.691**
Future Actual Emissions[c]		***13.0***	***15.5***	***86.7***	***38.1***	***16.3***	***0.4***	***376.8***	***0.007***	***16,606.283***
Project Emissions Change		1.2	1.2	16.5	5.7	1.0	3.2E-02	25.1	6.4E-04	1,472.6
PSD Significance Levels		100.0	40.0	25.0	15.0	10.0	40.0	40.0	0.6	75,000.0
PSD Review Required		**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Reasonable Possibility (Increases)		1.2	1.2	16.5	5.7	1.0	3.2E-02	25.1	6.4E-04	1,472.6
PSD Emiss Tracking & Recordkeeping Reqd?		No	No	**Yes**	No	No	No	**Yes**	No	No

[a]See Tables 3 and 4.
[b]See Table 6.
[c]See Table 7.
[d]GHGs are in the form of CO_2e.

Summary of PSD Analysis

The table below shows the actual baseline and projected emissions, demand growth exclusion, and project emissions increases for the Production Increase Project.

Table A. PSD Applicability

Pollutant (TPY)	Baseline Actual Emissions (BAE)	Projected Actual Emissions (PAE)	Demand Growth Exclusion (DG)	Emissions Increases (PEI)	Significant Emissions Rate (SER)	Subject to PSD
CO	11.9	13.0	11.9	1.2	100	No
NO_X	14.3	15.5	14.3	1.2	40	No
PM	66.4	86.7	70.2	16.5	25	No
PM_{10}	31.3	38.1	32.5	5.7	15	No
$PM_{2.5}$	15.3	16.3	15.3	1.0	10	No
SO_2	0.4	0.4	0.4	3.2E-02	40	No
VOC	350.6	376.8	351.6	25.1	40	No
Pb	0.01	0.01	0.01	6.4E-04	0.6	No
HAP	0.25	0.27	0.25	0.02		No
CO2e	15,134	16,606	15,134	1,473	75,000	No

The facility is considered a major stationary source with respect to PSD, because it is a chemical process plant that has the potential to emit 100 tons per year or more of one or more regulated air pollutant. However, as shown in the table above, this project is not a major modification under PSD regulations, since the differences between the baseline actual emissions and projected actual emissions do not reach or exceed the significant emissions rates. Emissions increases are not above PSD significance thresholds for any pollutant; therefore, PSD review is not required. Emission tracking and record keeping i triggered for VOC and PM. Therefore, SMP will track emissions of VOC and PM related to the project per Rule 62-212.300(1)(e), F.A.C.

Detailed Description of PSD Analysis

The following paragraphs present the approach to the PSD analysis and explains the methods used to calculate baseline actual emissions, capable of being accommodate values, and future actual emissions for the project.

Baseline Actual Emissions (BAE)

The baseline period is based on the average of the worst case 24 month period over the last 10 years. Worst case emissions are driven by production at SMP, and production has steadily increased for the SMP facility over the last 10 years. Calendar year data is available for most inputs and monthly data is available only for the usage of NC through the process (in the form of NC lacquer batches). Because of this, baseline emissions for most sources for this analysis are based on 2012 and 2013 data (from January through December of each year). The highest 24-month rolling average for NC usage was determined to be June 2013 through May 2014 and was chosen as the most representative value for the number of NC batches possible during the baseline period. This monthly data shows a steady increase over the January 2012 through May 2014 time period which is consistent with the steady increase in production. Where actual input data was not available, baseline emissions were set equal to potential emissions.

TABLE 3
2012 BASELINE EMISSION SUMMARY FOR SOURCES AFFECTED BY THE PROJECT
PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

EU ID	Source	Emissions (TPY)									
		CO	NOx	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAPS	lead	CO2e
011	Steam Boilers Nos. 1 and 2	10.55	12.62	0.97	0.97	0.97	0.30	0.69	2.37E-01	6.473E-05	15,139
012	Propellant Surface Coating Operations							8.88			
025	Six Existing Diesel Powered Emergency CI RICE	0.3	1.2	0.1	0.1	0.1	0.1				28
026	Two New Diesel Powered Emergency CI RICE	0.0	0.0	0.0	0.0	0.0	0.0				5
013	Vacuum Pump Exhaust							33.83			
014	Fugitive Emissions			21.20	15.30	14.19		218.89			
015	Process Vessel Loading Losses							3.92			
017	Propellant Dryer Exhaust			29.13	9.03			30.34			
018	Lacquer Preparation Kettle Loading Losses			6.30				24.01			
019	Solvent Storage Tanks							24.96			
021	Tray Dryers, Pellet Screens, and Graphite Bags			0.47	0.47			0.90			
022	Propellant Pneumatic Conveyors			3.65	3.65						
023	Propellant Grinding							1.21			
	Hooded Process Machinery			3.47	0.87			3.31			
	Surface Coating Manufacture							0.34			
	Recirculated Water System							2.15			
	Test Ranges	1.05	0.04	0.06	0.06	0.06	6.65E-05		9.93E-03	6.29E-03	
	Chemical Laboratories		0.38					2.78			
	Acid Mists			0.80	0.80						
	Lacquer Filter Brush Tanks							0.069			
	Equipment Decontamination	0.0011	0.0080	0.0002	0.0002	0.0002	5.75E-06	0.0003			
	Total	**11.91**	**14.32**	**66.14**	**31.25**	**15.31**	**0.39**	**356.27**	**0.25**	**0.01**	**15,172**

TABLE 4
2013 BASELINE EMISSION SUMMARY FOR SOURCES AFFECTED BY THE PROJECT
PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

EU ID	Source	Emissions (TPY)									
		CO	NOx	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAPS	lead	CO2e
011	Steam Boilers Nos. 1 and 2	10.49	12.56	0.97	0.97	0.96	0.31	0.69	2.36E-01	6.45E-05	15,063
012	Propellant Surface Coating Operations							9.20			
025	Six Existing Diesel Powered Emergency CI RICE	0.3	1.2	0.1	0.1	0.1	0.1				27.6
026	Two New Diesel Powered Emergency CI RICE	0.0	0.0	0.0	0.0	0.0	0.0				4.8
013	Vacuum Pump Exhaust							23.86			
014	Fugitive Emissions			21.20	15.30	14.19		218.76			
015	Process Vessel Loading Losses							3.60			
017	Propellant Dryer Exhaust			29.76	9.23			31.00			
018	Lacquer Preparation Kettle Loading Losses			6.30				23.27			
019	Solvent Storage Tanks							24.55			
021	Tray Dryers, Pellet Screens, and Graphite Bags			0.47	0.47			0.90			
022	Propellant Pneumatic Conveyors			3.65	3.65						
023	Propellant Grinding							0.49			
	Hooded Process Machinery			3.47	0.87			3.31			
	Surface Coating Manufacture							0.34			
	Recirculated Water System							2.11			
	Test Ranges	1.05	0.04	0.06	0.06	0.06	6.65E-05		9.93E-03	6.29E-03	
	Chemical Laboratories		0.38					2.78			
	Acid Mists			0.79	0.79						
	Lacquer Filter Brush Tanks							0.069			
	Equipment Decontamination	0.0011	0.0080	0.0002	0.0002	0.0002	5.7E-06	0.0003			
	Total	**11.85**	**14.26**	**66.76**	**31.43**	**15.30**	**0.40**	**344.92**	**0.25**	**0.01**	**15,096**

Capable of Being Accommodated During the Baseline Period (COA)

Capable of being accommodated values, i.e. the increase in the flow of NC through the process that could have been accommodated during the baseline period, are based on the month with the maximum production during the baseline period, annualized. Only monthly data is available for this analysis for the usage of NC through the process. Therefore, for the NC lacquer batches, the monthly data was evaluated to choose a representative flow of NC through the process that could have been accommodated during the

baseline period. As shown in Table 5 of the Application, both a 24-month and 12-month rolling averages were calculated from the data. The highest 12-month rolling average was determined to be June 2013 through May 2014 and was chosen as the most representative value for the number of NC batches possible during the baseline period. Therefore, COA calculations were based on this value. When monthly data was not available, the most recent time period was chosen, i.e., January 2013 through December 2013. If actual input data was not available, COA emissions were set equal to potential emissions. See Table 6 below for a summary of the COA emissions estimates.

TABLE 6
CAPABLE OF ACCOMODATING DURING THE BASELINE PERIOD FOR SOURCES AFFECTED BY THE PROJECT
PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

EU ID	Source	Emissions (TPY)									
		CO	NOx	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAPS	lead	CO2e
011	Steam Boilers Nos. 1 and 2	10.49	12.56	0.97	0.97	0.96	0.31	0.69	2.36E-01	6.45E-05	15,063
012	Propellant Surface Coating Operations							9.20			
025	Six Existing Diesel Powered Emergency CI RICE	0.3	1.2	0.1	0.1	0.1	0.1				28
026	Two New Diesel Powered Emergency CI RICE	0.0	0.0	0.0	0.0	0.0	0.0				5
013	Vacuum Pump Exhaust							23.86			
014	Fugitive Emissions			21.20	15.30	14.19		218.76			
015	Process Vessel Loading Losses							3.69			
017	Propellant Dryer Exhaust			32.43	10.05			33.78			
018	Lacquer Preparation Kettle Loading Losses			6.85				25.22			
019	Solvent Storage Tanks							26.24			
021	Tray Dryers, Pellet Screens, and Graphite Bags			0.47	0.47			0.90			
022	Propellant Pneumatic Conveyors			3.86	3.86						
023	Propellant Grinding							0.49			
	Hooded Process Machinery			3.47	0.87			3.31			
	Surface Coating Manufacture							0.34			
	Recirculated Water System							2.29			
	Test Ranges	1.05	0.04	0.06	0.06	0.06	6.65E-05		9.93E-03	6.29E-03	
	Chemical Laboratories		0.38					2.78			
	Acid Mists			0.79	0.79						
	Lacquer Filter Brush Tanks							0.069			
	Equipment Decontamination	0.0011	0.0080	0.0002	0.0002	0.0002	5.75E-06	0.0003			
	Total	**11.85**	**14.26**	**70.18**	**32.46**	**15.30**	**0.40**	**351.62**	**0.25**	**0.01**	**15,096**

Notes:
The capable of accommodated values are based on the worst case 24-month period from January 2012 - May 2014.
The worst case period was from June 2013 through May 2014. Monthly data was not available for all input values from this time period.
In cases where monthly data was not available, values from January 2013 through December 2013 were used.

Future Projected Actual Emissions (PAE)

The future projected actual emissions are based on the COA values plus any project emissions changes. See Table 7 below for a summary of the future projected actual emission estimates.

TABLE 7
FUTURE ACTUAL EMISSIONS SUMMARY FOR SOURCES AFFECTED BY THE PROJECT
PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

EU ID	Source	Emissions (TPY)									
		CO	NOx	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	HAPS	lead	CO2e
011	Steam Boilers Nos. 1 and 2	11.54	13.81	1.07	1.06	1.06	0.34	0.76	2.60E-01	7.09E-05	16,570
012	Propellant Surface Coating Operations							10.12			
025	Six Existing Diesel Powered Emergency CI RICE	0.2	1.1	0.1	0.1	0.1	0.1				26.0
026	Two New Diesel Powered Emergency CI RICE	0.1	0.1	0.0	0.0	0.0	0.0				10.6
013	Vacuum Pump Exhaust							26.21			
014	Fugitive Emissions			22.61	16.31	15.12		219.22			
015	Process Vessel Loading Losses							4.04			
017	Propellant Dryer Exhaust			44.77	13.88			39.91			
018	Lacquer Preparation Kettle Loading Losses			8.47				31.77			
019	Solvent Storage Tanks							33.19			
021	Tray Dryers, Pellet Screens, and Graphite Bags			0.48	0.48			0.90			
022	Propellant Pneumatic Conveyors			4.46	4.46						
023	Propellant Grinding							0.49			
	Hooded Process Machinery			3.81	0.95			3.64			
	Surface Coating Manufacture							0.35			
	Recirculated Water System							3.02			
	Test Ranges	1.16	0.05	0.07	0.07	0.07	7.31E-05		1.09E-02	6.92E-03	
	Chemical Laboratories		0.41					3.05			
	Acid Mists			0.85	0.85						
	Lacquer Filter Brush Tanks							0.072			
	Equipment Decontamination	0.0012	0.0088	0.0003	0.0003	0.0003	6.3E-06	0.00032			
	Total	**13.02**	**15.50**	**86.66**	**38.13**	**16.32**	**0.43**	**376.75**	**0.27**	**0.01**	**16,606**

Notes:
Future actual values are based on capable of accommodating values plus project increases. Some input values are set equal to potential to emit as noted in detailed calculations.

Discussion of Emissions

Overall, the PTE estimates show a reduction for VOC. As part of the Stream 26 change, EA that is currently being sent to the Wastewater Treatment Plant (WWTP) will be sent to the solvent stripper and recycled to the process. The reduction in EA to the WWTP (2.3 TPY) has been documented separately in the detailed future actual emissions calculations. However, SMP does not intend to "net" the reduction in the current PSD analysis since it is not required.

In addition to project changes shown presented in Table 1 above, several other revisions have been made to the PTE calculations that are not project related as follows.

1) Open Burn Unit: The open burn unit burn rate was increased from 1160 lb/day to 2430 lb/day based on the exemption from permitting request letter sent to FDEP on April 3, 2013. FDEP provided approval of this request in their response letter to SMP on April 8, 2013. The PTE calculations have been updated to reflect this change.
2) Reciprocating Internal Combustion Engines (RICE) emission unit designation: The PTE calculations have been re-organized to reflect the current regulated emission unit designations (EU 025-027). An error was found when reviewing the calculations. A retired engine had been included in the emissions summation. This engine has been removed from the total. In addition, AP-42 emission factors are being updated to reflect the regulatory limits of NSPS Subpart IIII for the new engines under EU026.
3) Vacuum Pump Exhaust (EU 013) – Propellant Impregnation: A good portion of the EA from the production impregnation area is scrubbed out into the water flow of the vacuum pump. The current PTE calculations do not account for this control. To determine the control efficiency of water, a

calculation was performed using the methodology from the following EPA document: "Methods for Estimating Air Emissions from Chemical Manufacturing Facilities", Volume II, Chapter 16, Section 4.2.5. August 2007. A control efficiency of 98.6% was calculated, i.e., 1.4% of the EA is released as vapors to the atmosphere. To be conservative, a control efficiency of 90%, was chosen, which is well below the calculated efficiency. This change reduces the current emission calculation for the vacuum pump exhaust from 97.2 TPY to 9.72 TPY. Currently, the water stream from the vacuum pump exhaust is sent to the WWTP. However, as presented in Table 1, with this project the EA in the water will be sent to the solvent recovery area 80% of the time, and will go to the WWTP 20% of the time. It should be noted that EA is biodegraded in the WWTP system and any releases are accounted for in the Fugitive Emissions (EU 014).

4) For the Process Vessel Loading Losses (EU 015) – the NC batch and transfer times for the lacquer hold tank have been updated. This change reduces VOC emissions.
5) Greenhouse Gases (GHGs): GHGs were added to the emission calculations for the boilers and engines.

A summary of PTE emissions for this project is presented in Table 8 below.

TABLE 8
PROPOSED POTENTIAL EMISSIONS SUMMARY
PRODUCT INCREASE PROJECT
ST. MARK'S POWDER

			Emissions										
			CO	NOx	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	NH3	Pb	HAPS	CO_2e
	EU ID	Source	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(lb/yr)	(lb/yr)	(ton/yr)
Regulated	011	Steam Boilers Nos. 1 and 2	18.66	52.77	18.81	16.50	11.56	244.64	1.04		2.07	889.70	37,801
	012	Propellant Surface Coating Operations							39.14				
	025	Six Existing Diesel Powered Emergency CI RICE	0.24	1.13	0.079	0.079	0.079	0.07					26
	026	Two New Diesel Powered Emergency CI RICE	0.07	0.08	0.00	0.00	0.00	0.02					11
	027	Two New Gasoline Powered Emergency SI RICE	0.0023	0.0039	0.00024	0.00024	0.00024	0.00020					0.3
Non-Regulated	013	Vacuum Pump Exhaust							92.63				
	014	Fugitive Emissions			22.6	16.3	15.1		242.38				
	015	Process Vessel Loading Losses							11.0				
	017	Propellant Dryer Exhaust			48.40	15.00			43.14				
	018	Lacquer Preparation Kettle Loading Losses			9.21				35.51				
	019	Solvent Storage Tanks							34.87			2.39E-06	
Insignificant	024	Pilot Surface Coating			0.018	0.018			2.71				
	016	Non-Condensable vents							2.25				
	021	Tray Dryer, Pellet Screens			0.48	0.48			0.90				
		Hooded Process Machinery			3.64	0.91			3.64				
		Plant Painting							2.67				
		Process Building Ventilation							3.14				
	022	Propellant Pneumatic Conveyors			4.73	4.73							
		Open Burn Unit	4.90	0.11	0.10	0.10	0.10	9.58E-04	0.18				
		Surface Coating Manufacture							0.35				
		Recirculated Water							2.86				
		Test Ranges	1.16	0.046	0.067	0.067	0.067	7.31E-05		0.01	13.84	21.85	
		Chemical Laboratories		0.41					3.05				
		Acidic Mists			1.069	1.069							
		Petroleum Storage							0.00				
		Arc Welding			0.016	0.016							
		Lacquer Filter Brush Tanks							0.07				
		Equipment Decontamination	0.0012	0.0088	0.0003	0.0003	0.0003	6.32E-06	0.00032				
	023	Propellant Grinding							4.78				
		Total	**25.04**	**54.56**	**109.24**	**55.29**	**26.93**	**244.73**	**526.29**	**0.01**	**15.90**	**911.55**	**37,838**
		Current PTE	20.25	55.05	95.32	50.39	25.94	244.95	604.73	0.01	14.64	909.56	N/A
		Change fromCurrent	4.79	-0.49	13.92	4.90	1.00	-0.22	-78.44	0.00	1.26	1.99	

3. APPLICATION REVIEW

Application Fee

This is a Title V facility. No fee is due.

State Requirements

This Title V source is not subject to any unit specific rules. A compliance assurance monitoring (CAM) plan is required for the South Coater and the North Sweetie Barrel. The North Coater operates under an approved O&M Plan.

Federal NSPS Provisions

None.

Federal NESHAP Provisions

None.

Other Draft Permit Requirements

N/A

4. PRELIMINARY DETERMINATION

The Department makes a preliminary determination that the proposed project will comply with all applicable state and federal air pollution regulations as conditioned by the draft permit. This determination is based on a technical review of the complete application, reasonable assurances provided by the applicant, and the conditions specified in the draft permit. Howard Ard is the project engineer responsible for reviewing the application and drafting the permit. Additional details of this analysis may be obtained by contacting the project engineer at 850.595.0622 or howard.ard@dep.state.fl.us.