Facility Name: **Solvay Specialty Polymers USA, LLC**
City: Augusta
County: Richmond
AIRS #: 04-13-245-00126 Application #: 22997, 22998, 40009

Date SIP Application Received: December 9, 2014
Date Title V Application Received: December 9, 2014
Permit No: 2821-245-0126-V-05-2

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Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and draft operating permit amendment. Complex issues and unusual items are explained in simpler terms and/or greater detail than is sometimes possible in the actual permit. This permit is being issued pursuant to: (1) Sections 391-3-1-.03(1) and 391-3-1-.03(10) of the Georgia Rules for Air Quality Control, (2) Part 70 of Chapter I of Title 40 of the Code of Federal Regulations, and (3) Title V of the Clean Air Act Amendments of 1990. The following narrative is designed to accompany the draft permit and is presented in the same general order as the permit. This narrative is intended only as an adjunct for the reviewer and has no legal standing. Any revisions made to the permit in response to comments received during the public comment period and EPA review process will be described in an addendum to this narrative.

I. Facility Description

A. Existing Permits

Table 1 below lists the current Title V permit, and all administrative amendments, minor and significant modifications to that permit, and 502(b)(10) attachments. Comments are listed in Table 2 below.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Comments	
		Yes	No
2800-245-0126-V-05-0	January 28, 2014		✓
2821-245-0126-V-05-1	March 16, 2015	✓	

Table 2: Comments on Specific Permits

Permit Number	Comments
2821-245-0126-V-05-1	Installation of a new crystallizer line.

B. Regulatory Status

1. PSD/NSR/RACT

The facility was potentially a "major" source under PSD/NSR regulations but took limits to remain as a "minor" source and avoid a PSD NSR review.

The facility is currently permitted to construct a Cogeneration Facility (Source Code C12A). In order to avoid PSD for this unit, the facility accepted a limit of 888,264 gallons of distillate fuel oil per 12-consecutive month period. However, as it has not yet been installed, the facility wishes to remove the cogeneration boiler from the Title V permit.

2. Title V Major Source Status by Pollutant

Table 3: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	Y			✓
PM_{10}	Y			✓
SO_2	Y		✓	
VOC	Y		✓	
NO_x	Y		✓	
CO	Y			✓
Individual HAP	Y	✓		
Total HAPs	Y	✓		

II. Proposed Modification

A. Description of Modification

Application 22997 – Sulfone Expansion

This application was submitted for the purpose of modifying the Sulfone Monomer Plant to allow an increase in production. The project includes various new and modified equipment.

Application 22998 – Project PUSH

This application was submitted for the purpose of manufacturing a new product that is classified as an ultra-performance polymer.

Application 40009 – Project Jupiter

This application was submitted for the purpose of installing a new unit for manufacturing a new product that is classified as an ultra-performance polymer. The Jupiter process involves a batch reaction, solidification, grinding, extraction, washing, slurry filtration, drying, and solvent recovery. The facility plans to start constructing this unit in March/April 2015. Production of the new product is expected to begin during the second quarter of 2016.

B. Emissions Change

The table below provides a summary of the emissions changes for each application and project submitted. After these projects have been implemented, the facility will remain a minor source with respect to PSD for VOC and NO_X, as permitted in Condition 3.2.1.

Table 4: Emissions Change Due to Modification

Pollutant	Current PTE with UDEL (tpy)	JUPITER (tpy)[1]	PUSH (tpy)	SULFONE (tpy)[2]	Total Potential Increase (tpy)	Total PTE (tpy)	PSD Threshold (tpy)
CO	51.2	38.4	0.0	0.04	38.4	89.6	100
NO_x	95.7	22.8	0.0	7.2	30.0	<100[4]	100
PM (filterable only)	63.0	10.7	0.29	5.5	16.5	79.5	100
PM_{10}	23.4	3.5	0.0	5.5	9.0	32.4	100
$PM_{2.5}$	23.4	3.5	0.0	5.5	9.0	32.4	100
SO_2	99.9	0.3	0.0	6.2	6.5	<100[4]	100
VOC[3]	98.9	3.5	10.7	9.5	23.7	<100[4]	100

1. Emissions includes a new Boiler and HO Heater
2. Emission increase from a current permit limit
3. Includes Amodel VOC emissions based on requested modified maximum limit of 5.0 pph
4. Site-wide limits on SO_2, NO_X, and VOC will limit PTE to <100 tpy

C. PSD/NSR Applicability

For the purpose of Application Nos. 22997, 22998, and 40009, the facility wishes to remain classified as a non-major source for PSD purposes by applying the current 100 tpy limits on NO_X and SO_2 to both new fuel-burning equipment associated with these applications (Source Codes BE01 and BE02) and adding a limit of 100 tpy on site-wide VOC emissions from non-exempt sources.

III. Facility Wide Requirements

None applicable.

IV. Regulated Equipment Requirements

A. Brief Process Description

Please refer to Section II.A.

B. Equipment List for the Process

Please refer to Table 3.1 in Permit Amendment No. 2821-245-0126-V-05-2 for a list of the new equipment associated with this process.

C. Equipment & Rule Applicability

Sulfone Expansion:
The new equipment associated with this process is subject to the following rules and regulations:

391-3-1-.02(2)(b) – Particulate Matter Emissions
391-3-1-.02(2)(e) – Visible Emissions
391-3-1-.02(2)(n) – Fugitive Emissions

40 CFR 63 Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
The application indicates that the Sulfone expansion will have continuous process vents, with the exception of the MIS reactor vent, that are subject to this rule. These vents are considered Group 2 and have calculated TRE values of greater than 1.9. However, for vents LE-576 and LE-680, the TRE values are greater than 1.9 but less than 5.0 and therefore will require additional monitoring per 40 CFR 63.993(c)(2). The facility proposes the outlet coolant temperature of each of these vent condensers be monitored once per operating shift in concurrence with Permit Conditions 5.2.1.h and 6.1.7.c.iv, which require a maximum outlet coolant temperature of 12.8°C.

The MIS reactor vent is a Group 2 batch process vent and includes one new storage tank (LD-358) that will store sulfuric acid, which is not considered a HAP. Therefore it is exempt from MON and no additional controls or monitoring will be necessary.

Project PUSH:
The new equipment associated with this process is subject to the following rules and regulations:

391-3-1-.02(2)(b) – Particulate Matter Emissions
391-3-1-.02(2)(e) – Visible Emissions
391-3-1-.02(2)(n) – Fugitive Emissions

40 CFR 63 Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
The application indicates that the PUSH Process will have one continuous process vent (FT-793). The stream is considered a Group 2 process vent and will contain a concentration of HAP, benzene and/or methanol, greater than 50 ppmw. The facility plans to use a membrane recovery device designed with a recovery efficiency of greater than 95% to capture the methanol for reuse in the process. The facility will

also implement one of the leak detection and repair (LDAR) program options from Table 6 of MON for any equipment that exceeds 5% total organic HAP by weight.

The storage tanks associated with this process are considered Group 2 and therefore will not require any type of control.

This process will also generate wastewater that contains a Table 8 compound at a concentration greater than the 5 ppmw limit. However, none of the streams will exceed the Group 1 wastewater limits.

Project Jupiter:
The new equipment associated with this process is subject to the following rules and regulations:

391-3-1-.02(2)(d) – Fuel-Burning Equipment
391-3-1-.02(2)(g) – Sulfur Dioxide Emissions
391-3-1-.02(2)(n) – Fugitive Emissions

40 CFR 63 Subpart FFFF – National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing
The application indicates that the Jupiter Process has no continuous process vents. However, this process will result in emissions of halogen halide and halogen HAP of 1,200 lb/yr. The facility plans to use a scrubber, guaranteed by the manufacturer to meet the MON requirement for halogen halide and halogen HAP concentration of less than or equal to 20 ppmv. The facility will also implement one of the leak detection and repair (LDAR) program options from Table 6 of MON for any equipment that exceeds 5% total organic HAP by weight.

All storage tanks associated with this process are Group 2 and therefore require no control. Any wastewater generated will require no control, as it will be less than the 5 ppmw concentration limit for MON.

40 CFR 60 Subpart Dc – NSPS for Small Institutional-Commercial-Industrial Steam Generating Units
The new boiler (BE02) is subject to this rule since it has a heat input capacity of 97 MMBtu/hr. However, the facility requests that a limit of 0.5 weight percent be added to the permit for the purpose of exemption from PM limits, testing, and monitoring.

40 CFR 63 Subpart DDDDD – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters
The new boiler (BE02) and hot oil heater (BE01) associated with this project are considered Gas 1 units and will therefore have no applicable emissions limits. However, they are subject to the requirement for conducting periodic tune-ups at a specified frequency. The facility will submit a Notification of Compliance Status report after the initial startup of these units.

D. Compliance Status

The facility did not indicate any non-compliance issues in the applications.

E. Operational Flexibility

Not applicable.

F. Permit Conditions

The table in Condition 3.1 was revised to include new equipment for Project Jupiter, Project PUSH, and the Sulfone Expansion project. The Cogeneration Facility (Source Code C12A) was removed, per the facility's request. Permit condition references were also updated.

The table in Condition 3.2.1 was revised to include the new hot oil heater (BE01) and boiler (BE02). The Udel thermal oxidizer (00C2) was also added to this condition.

Conditions 3.2.2, 3.2.3, and 3.2.6 were removed, since the facility is currently taking limits on NO_X and SO_2 of 100 tpy for classification as a PSD non-major source.

New Condition 3.2.2 was added to include a VOC limit of 100 tons per year of for the combination of gases emitted from all non-exempt equipment.

The HMDA limit in Condition 3.2.4 was revised from 10.0 lb/hr to 5.0 lb/hr in accordance with the recent site-wide limit of 100 tpy VOC taken for PSD avoidance purposes.

Condition 3.2.5 was removed, as the Cogeneration Facility (C12A) has not yet been installed.

The Cogeneration Facility (C12A) was removed from list of equipment in Conditions 3.3.4, 3.3.5, and 3.3.6, and the new Jupiter boiler (BE02) and hot oil heater (BE01) were added.

The Cogeneration Facility (C12A) was removed from list of equipment in Condition 3.3.25, and the new Jupiter boiler (BE02) and hot oil heater (BE01) were added.

The equipment list in Condition 3.4.2 was revised to include new equipment from the Jupiter and PUSH processes.

The equipment list in Condition 3.4.3 was revised to include the new Jupiter boiler (BE02) and hot oil heater (BE01).

The Cogeneration Facility (C12A) was removed from list of equipment in Conditions 3.4.4, and the new Jupiter boiler (BE02) and hot oil heater (BE01) were added.

The equipment list in Condition 3.5.6 was revised to include the new Jupiter boiler (BE02) and hot oil heater (BE01).

V. Testing Requirements (with Associated Record Keeping and Reporting)

Condition 4.2.1 has been removed, as the Cogeneration Facility (C12A) has not yet been installed.

VI. Monitoring Requirements (with Associated Record Keeping and Reporting)

Condition 5.2.1 was revised to include monitoring of the pressure drop and/or the effluent pH of the new scrubbers (Source Codes: SC1, SC2, FT01, FT02, and FT03) associated with the Jupiter and PUSH processes. All data is to be recorded once per working shift. The condition was also revised to add pressure drop monitoring for the membrane control device while operating in HSS mode.

VII. Other Record Keeping and Reporting Requirements

Conditions 6.1.7.b.ii, iii, iv and v were removed. The facility has accepted a limit of 100 tpy for NO_X and SO_2 to qualify as a minor source for PSD purposes. Therefore, these conditions are no longer necessary.

Condition 6.1.7.c.viii was added to include pressure drop excursions for the new scrubbers (PR-200 and PF-800) associated with the Jupiter Process.

Condition 6.1.7.c.ix was added to include pressure drop excursions for the new scrubbers (FT01, FT02, FT03) and membrane control device associated with the PUSH Process.

Condition 6.1.7.c.x was added to include a pH excursion for the new scrubbers (FT01 and FT02) associated with the PUSH Process.

Condition 6.2.8 has been removed, as the Cogeneration Facility (C12A) has not yet been installed.

Condition 6.2.10 was modified to include a report of monthly and 12-month rolling total emissions of VOC, NO_X, and SO_2 to be submitted with the semiannual report per Condition 6.1.4.

Condition 6.2.12 has been removed, as the Cogeneration Facility (C12A) has not yet been installed.

Condition 6.2.16 was modified to include references to the new condensers (C6F, C7D, and D576) associated with the Sulfone expansion.

VIII. Specific Requirements

None applicable.