Facility Name: **Solvay Specialty Polymers USA, LLC**
City: Augusta
County: Richmond
AIRS #: 04-13-245-00126 Application #: 198021

Date SIP Application Received: December 15, 2017
Date Title V Application Received: December 15, 2017
Permit No: 2821-245-0126-V-05-3

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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.

Table 1: Current Title V Permit and Amendments

Permit/Amendment Number	Date of Issuance	Description
2821-245-0126-V-05-0	January 28, 2014	Title V Renewal
2821-245-0126-V-05-1	March 16, 2015	Installation of a new crystallizer line
2821-245-0126-V-05-2	June 1, 2015	Expansion of Sulfone Process, construction and operation of Jupiter and PUSH processes.

B. Regulatory Status

1. PSD/NSR/RACT

The facility is considered a minor source under PSD and has accepted the following limits to avoid PSD/NSR review.

a. The fuel-burning equipment listed below has a combined total limit of 100 tons per year of SO_2 and NO_X. The equipment also has a combined fuel-burning limit of 1.0 billion cubic feet of natural gas and 2,760,000 gallons of fuel oil per 12-consecutive months.

Source Code	Process Unit	Equipment
0A15	Amodel	Flare KB-807
0A17	Amodel	Hot Oil Heater KB-901
0A21	Amodel	Boiler UB-1210
00B8	Sulfone	Waste Heat Boiler LM-731
00H1	Sulfone	Hot Oil Heater #1
00H2	Sulfone	Hot Oil Heater #2
00P1	Xydar	Hot Oil Heater H-601
00P2	Xydar	Hot Oil Heater H-603
00P3	Xydar/Utilities	Boiler H-602
00P4	Xydar/Utilities	Boiler H-604
00C2	Udel	Thermal Oxidizer
BE01	Jupiter	Hot Oil Heater
BE02	Jupiter	Boiler

b. The facility is limited to 100 tons per year of VOC emissions from non-exempt sources.

2. Title V Major Source Status by Pollutant

Table 2: 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	✓			✓
PM_{10}	✓			✓
$PM_{2.5}$	✓			✓
SO_2	✓		✓	
VOC	✓		✓	
NO_x	✓		✓	
CO	✓			✓
Individual HAP	✓	✓		
Total HAPs	✓	✓		

II. Proposed Modification

A. Description of Modification

Application No. 198021 was submitted for the purpose of installing additional equipment for the manufacture of industrial polymer (Verian) within the existing Xydar unit.

B. Emissions Change

The table below provides a summary of the emissions changes for the proposed modification. As a result, the facility requests a 100 tpy limit for CO emissions similar to the current VOC limit. Actual CO emissions will remain lower than the potential emissions shown in Table 3. After the implementation of this project and the requested limit, the facility will remain a minor source with respect to PSD for CO, VOC, and NO_X, as permitted in Condition 3.2.1.

Table 3: Summary of Potential Emissions

Pollutant	Current PTE (tpy)	Total Increase (tpy)	Total PTE (tpy)	PSD Threshold (tpy)
PM (filterable only)	79.5	0.0271	79.53	100
PM_{10}	32.4	0.0271	32.43	100
$PM_{2.5}$	32.4	0.0271	32.43	100
CO	**89.60**	**49.38**	**<100**	**100**
VOC	<100	0.234	<100*	100
SO_2	<100	0	<100*	100
NO_X	<100	0	<100*	100

*Site-wide limits on VOC, SO_2, and NO_X limit PTE to <100 tpy.

C. PSD/NSR Applicability

For the purpose of Application No. 198021, the facility wishes to remain classified as a non-major source for PSD purposes by keeping the current 100 tpy limits on NO_X, SO_2, and VOC and adding a limit of 100 tpy on site-wide CO emissions from non-exempt sources.

III. Facility Wide Requirements

None applicable.

IV. Regulated Equipment Requirements

A. Brief Process Description

The production of Verian polymer is carried out by a 4-step process. First, a raw material is processed via evaporation. The resulting material and other additives are then sent to a reaction vessel. The reaction of liquid and additives is completed in a batch reactor. The material from the batch reactors is transferred to a crystallization system that allows the polymer to form as a solid. The polymer is then transferred to the final product handling system as a pellet and stored in Gaylord boxes.

B. Equipment List for the Process

The following tables show current and additional emissions units for the Xydar/Verian process. Units listed in Table 4 are included in Attachment B of Permit No. 2821-245-0126-V-05-3.

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	**Description**	**Applicable Requirements/Standards**	**Corresponding Permit Conditions**	**ID No.**	**Description**
XYDAR / VERIAN PROCESS					
00P1	Hot Oil Heater H-601	391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 63 Subpart DDDDD	3.2.1 through 3.2.3, 3.2.25 through 3.2.27, 3.4.3, 3.4.4, 3.5.6, 6.1.7, 6.2.6, 6.2.7, 6.2.10, 6.2.11	None	None
00P2	Hot Oil Heater H-603	391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 63 Subpart DDDDD	3.2.1 through 3.2.3, 3.2.25 through 3.2.27, 3.4.3, 3.4.4, 3.5.6, 6.1.7, 6.2.6, 6.2.7, 6.2.10, 6.2.11	None	None
00P3	Boiler H-602	391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 63 Subpart DDDDD	3.2.1 through 3.2.3, 3.2.25 through 3.2.27, 3.4.3, 3.4.4, 3.5.6, 6.1.7, 6.2.6, 6.2.7, 6.2.10, 6.2.11	None	None
00P4	Boiler H-604	391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 63 Subpart DDDDD	3.2.1 through 3.2.3, 3.2.25 through 3.2.27, 3.4.3, 3.4.4, 3.5.6, 6.1.7, 6.2.6, 6.2.7, 6.2.10, 6.2.11	None	None
~~**0X2E**~~ **RX01**	Reactors R-201 A/B/C	391-3-1-.02(2)(b) 391-3-1-.01(2)(e) 40 CFR 63 Subpart FFFF **(Xydar Only)**	3.3.7, 3.3.8, 3.3.9, 3.4.1, 3.4.2, 3.5.2, 5.2.2, 6.1.7, 6.2.22, 6.2.23, 6.2.24	0X2T	Caustic Scrubber T-701
0X2G	Mixer R-202A	391-3-1-.02(2)(b)	3.3.7, 3.3.8, 3.3.9,	0X2T	Caustic Scrubber T-701

Emission Units		Specific Limitations/Requirements		Air Pollution Control Devices	
ID No.	**Description**	**Applicable Requirements/Standards**	**Corresponding Permit Conditions**	**ID No.**	**Description**
		391-3-1-.01(2)(e) 40 CFR 63 Subpart FFFF **(Xydar Only)**	3.4.1, 3.4.2, 3.5.2, 5.2.2, 6.1.7, 6.2.22, 6.2.23, 6.2.24	0X2U	Venturi Scrubber ME-252A
0X2H	Mixer R-202B	391-3-1-.02(2)(b) 391-3-1-.01(2)(e) 40 CFR 63 Subpart FFFF **(Xydar Only)**	3.3.7, 3.3.8, 3.3.9, 3.4.1, 3.4.2, 3.5.2, 5.2.2, 6.1.7, 6.2.22, 6.2.23, 6.2.24	0X2T 0X2V	Caustic Scrubber T-701 Venturi Scrubber ME-252B
0X2I	Mixer R-202C	391-3-1-.02(2)(b) 391-3-1-.01(2)(e) 40 CFR 63 Subpart FFFF **(Xydar Only)**	3.3.7, 3.3.8, 3.3.9, 3.4.1, 3.4.2, 3.5.2, 5.2.2, 6.1.7, 6.2.22, 6.2.23, 6.2.24	0X2T 0X2W	Caustic Scrubber T-701 Venturi Scrubber ME-252C
~~**0X2J**~~ **RM01** **RM02** **RM03**	Raw Material Super Sack Unloading V109, V110, V111	391-3-1-.01(2)(n) 40 CFR 63 Subpart FFFF **(Xydar Only)**	3.3.7, 3.3.8, 3.3.9, 3.5.1, 6.2.22, 6.2.23, 6.2.24	0X1P	Baghouse F-146

Table 4: Additional Emission Units for the New Verian Process

Emission Units		Air Pollution Control Devices	
ID No.	**Description**	**ID No.**	**Description**
JF-111	Raw Material Storage Tank	0X2T	Caustic Scrubber T-701
JE-114	Evaporator Reflux Condenser		
JF-115	Evaporator Storage Tank		
JD-116	Waste Water Vessel		
JE-116	Evaporator Total Condenser		
JM-121/122	Unloading Stations		
JME-121/122	Screw Conveyors		
JF-123	Additive Tank		
JE-226/227/228	De-Sublimators		
JD-301	Pre-Polymer Hold Tank		
JD-501	Cleaning Solution Vessel		
JME-402A/B	Vibrating Feeder		
JH-403A/B	Guard Filter		
JC-402A/B	Transfer Blower		
JME-302	Pelletizer/Belt Cooler		
JME-306	Crystallizer/Pellet Cooler	None	None
JH-306	Crystallizer/Pellet Cooler Condenser		
JH-402A/B	Pellet Separator		
JD-402A/B	Pellet Storage Bin		

C. Equipment & Rule Applicability

GA Rule 391-3-1-.02(2)(b) – *Visible Emissions*. This rule limits the opacity of emissions from sources to no greater than 40 percent, except as provided by more specific rules. For the existing reactors, the facility will continue to comply with this rule as per Condition 3.4.1.

GA Rule 391-3-1-.02(2)(e) – *Particulate Matter Emissions from Manufacturing Processes*. This rule limits particulate matter emission from sources based on process input. Units to which this rule will apply include the reactors, mixers, and solid polymer processing operations. The solid polymer processing units are equipped with particulate collection devices, i.e., cyclones and filters. The facility will comply with this rule by continuing to comply with the allowable emission limit per the equation listed in Condition 3.4.2.

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*. This subpart applies to storage vessels with a capacity that exceeds 75 m^3 (19,813 gallons) and are used to store volatile organic liquids. The proposed new raw material storage tank (ID No. JF-111) is potentially subject to this subpart because its capacity is rated at 151 m^3 (39,890 gal). However, it is considered a process tank and has a true vapor pressure of less than 3.5 kilopascals (kPa); therefore it is exempt from this regulation, per 40 CFR 60.110b.

40 CFR 63 Subpart FFFF – *National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing*. This subpart (referred to as MON) applies to major sources of HAP that produce a MON chemical. The new Verian process does not use any HAPs and will not produce any HAPs; therefore it is not subject to the MON.

D. Permit Conditions

New Condition 3.2.7 was added to include a CO limit of 100 tons per year of for the combination of gases emitted from the facility.

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

Condition 4.1.3 was revised to include Method 10 for determining CO emissions.

Condition 4.2.4 was added to require a performance test for CO emissions as vented from the scrubber (ID No. 0X2T) within 180 days of startup. This test will be used to establish emission factors to demonstrate compliance with Condition 3.2.7.

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

The facility will continue to comply with monitoring requirements for the scrubber (ID No. 0X2T) and baghouse (ID No. 0X1P) in accordance with existing permit conditions.

VII. Other Record Keeping and Reporting Requirements

Condition 6.2.10 was modified to include CO in the report of monthly and 12-month rolling total emissions to be submitted with the semiannual report per Condition 6.1.4, as well as calculation requirements for total monthly CO emissions.

VIII. Specific Requirements

None applicable.

Addendum to Narrative