Facility Name: **Solvay Specialty Polymers USA, LLC**
City: Augusta
County: Richmond
AIRS #: 04-13-245-00126 Application #: 29216

Date SIP Application Received: February 29, 2024
Date Title V Application Received: February 29, 2024
Permit No: 2821-245-0126-V-06-1

Program	Review Engineers	Review Managers
SSPP	Cassie Smith	Wendy Troemel
SSCP	Sherry Waldron	William Fleming
ISMU	Joshua Pittman	Dan McCain
TOXICS	Sherry Waldron	William Fleming
Permitting Program Manager		Steve Alison

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-06-0	May 21, 2020	Title V Renewal

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, as well as the 100 Area Sulfone raw material production process, has a combined total limit of 100 tons per year of SO_2 and NO_X.

Source Code	Process Unit	Equipment
0A15	Amodel	Flare KB-807
0A17	Amodel	Hot Oil Heater KB-901
0A21	Amodel	Boiler UB-1210
0A22	**Amodel**	**Boiler UB-1210-1**
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
00C2	Udel	Udel Thermal Oxidizer
BE01	KetaSpire/NovaSpire	Hot Oil Heater
BE02	KetaSpire/NovaSpire	Boiler
PM-3100	**KetaSpire/NovaSpire**	**Hot Oil Heater**
UB-1310	**Sarsaparilla**	**Boiler UB-1310**
HB-211	**Sarsaparilla**	**Furnace HB-211**
HB-221	**Sarsaparilla**	**Furnace HB-221**
HB-231	**Sarsaparilla**	**Furnace HB-231**
HB-1800	**Sarsaparilla**	**Thermal Oxidizer HB-1800**
HB-1801	**Sarsaparilla**	**Thermal Oxidizer HB-1801**

b. The facility is limited to 100 tons per year of VOC emissions and 100 tons per year of CO 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. 29216 was submitted for the purpose of modifying several existing process areas, including the addition of new equipment, as well as installing a new process line. Construction of the first project is anticipated to begin in the first quarter of 2025, with the other projects being initiated thereafter. All projects are expected to be completed by 2030.

Amodel Project

Amodel is a strong, tough, high temperature polymer known as a polyphthalamide and is used in automotive, electronic, and other consumer applications. Amodel represents an entirely new class of plastics, produced for the first time commercially at the Augusta site. In the production of Amodel, the raw materials are first mixed together in the feed preparation area and later concentrated and heated before entering the reaction vessel. After reaction, the Amodel product is sent through an extruder where the molten material is made into small pellets. The pellets are then screened to remove large and small particles before packaging.

Among other debottlenecking efforts to existing unit operations, Solvay plans to modify the Amodel process unit by adding solid stating process equipment (which include emission points A-70, A-71, A-72, and A-73) to gradually increase production. The solid stating process will increase overall unit throughput and requires shorter cycle times in existing equipment, allowing for quicker overall processing.

The following changes are also proposed:

200, 300, 400, 500 Areas
- Addition of existing catalyst hopper (KF-306) that was inadvertently omitted from the permit.
- Revision of tank names (KD-350 and KD-310) to accurately represent process operations.

800 Area
- Revisions to equipment descriptions to reflect actual operations associated with the individual equipment.

Utilities
- Addition of a new boiler to replace UB-1210 and provide steam for the Amodel process, as well as other plant processes. The new boiler, UB-1210-1, will have a heat input capacity of 99.5 MMBtu/hr and primarily fire natural gas, with fuel oil as a backup for periods of natural gas curtailment. The boiler will also be equipped with highly efficient low NO_X and low CO burners. Existing boiler UB-1210 will remain onsite and operational as a spare boiler until the new boiler is operating properly. Solvay plans to keep UB-1210 in place for a period of time up to and after installation of the new boiler to serve as a spare boiler until such time as Solvay is confident that the new boiler is operating properly and UB-1210 is no longer needed. Solvay does not expect to operate UB-1210 concurrent with the new boiler for significant periods of time.

Compounding Project

The production of compounds is accomplished by the melting of polymers and additives in extruders. Reinforcement additives are introduced into the melted polymer and formed into pellets. Pellets are cooled, size screened, and stored prior to packing and shipping.

Solvay plans to add two new extruder systems (D6 and D7), including associated raw material receiving and conveying equipment (both vacuum and gravity), as well as product processing equipment. Emissions will be controlled by a dedusting system and filters similar to that of a baghouse. D6 and D7 will be capable of using polymer raw material in both powder and pellet form. D7 will also be able to use polymer raw material in liquid form. Each extruder will be equipped with a collection system and a liquid ring vacuum pump, through which the product will be cooled and solidified to form pellets.

KetaSpire/NovaSpire Project

This existing process produces an ultra-performance polymer using a batch reaction, drying, and solvent recovery.

Solvay plans to modify this process by adding new equipment and modifying existing equipment to increase production. New equipment will include an oil heater, a reactor and associated scrubber, raw material bins, a new solvent extractor, dryer, and powder system. Solvay plans to install this equipment over the course of several years to make incremental increases in production.

Sulfone Project

The Sulfone monomer produced by Solvay is primarily used by the facility to produce Udel, Radel A, and Radel R at other manufacturing locations. These polymers are used to manufacture materials and parts for medical, aircraft, automotive, and electronics industries. The Sulfone monomer is also used in the manufacturing of pharmaceuticals and specialty chemicals. Sulfone can be produced as either a molten product or granular product through a reaction and purification process. The final product is transported offsite in bins or supersacks.

Solvay plans to expand the Sulfone process in order to incrementally increase annual production. The following changes are proposed:

100 Area – Raw Material Storage
- Addition of a raw material production unit

200 and 300 Areas – Reaction
- Addition of a new Sulfonation II reaction tower. The modification will not add any new emissions points or affect existing emissions.

400 Area – Extraction
- Addition of a new surge drum (LD-441) and a new extraction line. LD-441 will vent to a new condenser (LE-580). The new extraction line will consist of a set of acid and neutralization columns and a wash step, all identical to the existing units.

500, 600, 700, and 800 Areas – Production Purification
- Addition of a second concentrator/purification system, which will include the following new equipment that will all vent to Condenser LE-580:
    - LD-441 Surge Drum
    - LR-375 Sulfonylation Column
    - LD-585 MCB Surge Drum
    - LD-688 Surge Drum
    - LD-788 Surge Drum
    - LD-880 Surge Drum
    - LT-681 Tower
    - LT-781 Tower
    - LT-881 Tower
    - LD-890 Dissolver Drum
    - LE-782 Condenser

1700 Area – Product Granulation
- Installation of additional equipment, including a molten storage tank with an atmospheric vent (S13F). The total number of tanks for this process will be four; two tanks were previously considered insignificant.

MIS Cracking

Solvay operates an MIS unit to "crack" a byproduct of MIS, which recovers monochlorobenzene (MCB) to be used as a raw material in the Sulfone process. Once recovered, MCB is recycled back into the process where it reduces consumption of the raw material. In a letter dated November 6, 2023, Solvay notified GA EPD of a project to add a condenser (LE-368) to the permitted Sulfone process to optimize operational conditions. Additional piping, valves, and instrumentation were required to vent emissions to the new condenser. The project has since been completed and the following equipment are now routed to Condenser LE-368: 0S7D, which includes LT-790; LD-792; LR-350; and LT-363.

With the Sulfone expansion project, Solvay plans to install an additional MIS cracking system that will be identical to the existing system. Equipment to be added includes LR-320, LE-331, LH-337, LD-791, LD-335, LT-333, and LE-347.

Voluntary Carbon Adsorption System

In a letter dated September 29, 2023, Solvay notified GA EPD of plans to install two voluntary carbon adsorption beds in parallel (LF-1673 and LF-1674). When one is active, the other will serve as backup. Emissions from the following existing condensers which currently vent to the atmosphere, will be routed to the carbon adsorption system: LD-430, LE-309, LE-679, LE-405, LE-680, LE-467, LE-576, LE-477, LE-330, and LE-114. Solvay will also route new condenser LE-368 to this system. In the event of a malfunction of the condensers or loss of cooling that results in a temperature above the allowable range, the emissions from the condensers will be routed to the backup carbon beds, per Condition 6.1.7.c.iv of the permit. This system will be installed in 2024.

Solvay requests to include this system as part of the current permit modification.

Verian/Xydar Project

In March 2018, Solvay received a permit revision to modify the three existing Xydar lines to produce a new polymer, Verian. To-date, only one line has been converted; however, it has not reached full production capacity. The converted line has produced sellable product and a stack test was conducted. Solvay still plans to complete the conversion that is in progress, as well as modify one or both the other lines to produce Verian. As such, Solvay is requesting that modifications be allowed to continue as described in the previous permit application. No new equipment or changes from the previous application are requested.

Xydar is a high temperature liquid crystal polymer and is frequently used to make very small, intricate parts for the computer and electronics industries. The production of Xydar polymer is carried out by the reaction of liquid and solid monomers in a batch reactor. The material from the batch reactors is transferred to a mixing system that allows the polymer to form as a solid. The polymer is then transferred to the final product handling system as a powder and stored in 500-kilogram Gaylord boxes.

Solvay plans to modify two existing Xydar lines to be able to produce either Xydar or another polymer. New equipment that will be added include units for processing, conveying, crystallization, classifying and packaging, as well as storage tanks.

PUSH Project

Solvay received a permit to construct a new process to produce a new ultra-high-performance polymer named Project PUSH. Solvay has not completed construction on this process but still intends to install and operate this new unit at the Augusta facility. Solvay proposes to add several raw materials to the current authorization, but the process remains the same previously permitted. The added raw materials are non-HAP and non-TAP chemicals. The process will be constructed on the east side of the Augusta plant site and involves a batch reaction and purification steps.

Project Sarsaparilla

Solvay proposes to construct an entirely new process (Project Sarsaparilla) to supply polymer to the rapidly growing advanced battery production industry. The Sarsaparilla process starts with a primary raw material, 1-Chloro-1,1-difluoroethane (aka HCFC-142b or 142b) which is a haloalkane with the chemical formula CH_3CClF_2. The Solvay process will pyrolyze 142b to produce vinylidene difluoride (VDF) which is an intermediate that can be shipped as a product or polymerized onsite to form polyvinylidene fluoride (PVDF). As part of this project, Solvay will also install a 99.5 million Btu/hr natural gas-fired boiler. The boiler will be tied to the site's steam system and could potentially supply steam to processes other than the Sarsaparilla unit.

VDF Production Area

HCFC-142b will be received in rail cars and unloaded into pressurized storage vessels which feed into pyrolysis furnaces. Process gas from the furnaces is then routed to the quench section for separation and recovery. Purified process gas containing VDF is then dried and compressed and sent to a rectification area for further purification. The final stage is cooling to convert the VDF to a liquid for storage. Final products can be shipped offsite as a liquid or routed to the polymerization section. Emissions from the VDF process will be routed to one of two thermal oxidizers followed by caustic scrubbers for treatment of organics and capture of halogens. The halogens are then discharged to wastewater treatment.

Polymerization Area

Liquid VDF is stored within the process and fed to a batch reactor with additives to polymerize the VDF into PVDF. The resulting polymer is a solid that is contained in a water slurry. After impurities are removed, the dried polymer is then packaged for shipping to customers as a powder. VDF, as well as comonomers, and other additives are introduced into the reactor where they combine to produce PVDF polymer. Sources of particulate are controlled by baghouses.

Utilities

The process includes a 99.5 MMBtu/hr boiler that uses natural gas to produce steam. Fuel oil may be used during periods of curtailment and for routine testing and maintenance. The boiler will be a water-tube boiler equipped with a highly efficient, low NO_X burner to minimize NO_X and CO production. Solvay will also install a wastewater pH neutralization process. The wastewater from the process contains halogens; prior to discharge to the city of Augusta, the wastewater pH must be in the range of 6-10 standard units. Solvay will use a basic material to neutralize the wastewater. Dry powder lime will be received from rail cars or trucks and pneumatically conveyed to a silo equipped with a filtration system to capture the lime. The filter is inherent to the process because the conveying system would not function without the filter. After conveying to the silo, the base is mixed with water in a 'hydrator' to dissolve it in water.

Emergency Scrubbing Operations

Because the process involves flammable and gaseous materials, an emergency scrubber system will be installed to capture halogens in the event that the thermal oxidizer and scrubber system cannot be used for emission control, i.e., during a malfunction or unplanned shutdown.

Alternate Operating Scenario

Due to process issues, there may be times when emissions from HT-305 may not be able to be vented to the thermal oxidizer system. The vent from HT-305 does not contain any HAP (organic, halogen, or halogenated). Solvay will track hours operating in this mode and prepare emission estimates to include in monthly emission calculations.

B. PSD/NSR Applicability and Emissions Change

Potential emissions of existing equipment without considering controls and permits limits are above the Prevention of Significant Deterioration (PSD) threshold for qualification as a major source of 100 tpy for all PSD pollutants. Solvay has accepted limits on SO_2, CO, NO_X and VOC of 100 tpy each, and is therefore considered a minor source with respect to PSD.

Proposed emissions changes were calculated based on AP-42 and vendor emission factors and are summarized in the table below. All emissions are expected to remain below PSD thresholds. Detailed calculations may be found in the Appendices of Application No. 29216. No changes are necessary to the minor source status of the facility or the 100 tpy limits in Conditions 3.2.1, 3.2.2, and 3.2.3 of the permit.

Table 3. Maximum Anticipated Actual Emissions (tpy)

Pollutant	Amodel	Compounding	KetaSpire/ NovaSpire	Sulfone	Verian/ Xydar	PUSH	Sarsaparilla	TOTAL
CO	8.13	--	13.27	28.13	7.41	--	10.32	68.1
NO_X	13.89	--	21.19	33.86	--	--	28.30	98.3
PM	2.16	15.69	37.64	9.25	0.01	0.27	19.94	86.7
PM_{10}	1.96	15.69	37.64	9.25	0.01	0.27	19.94	86.5
$PM_{2.5}$	1.96	15.69	37.64	9.25	0.01	0.27	19.94	86.5
SO_2	7.02	--	19.68	0.27	--	--	25.38	52.4
VOC	7.87	5.09	5.48	32.11	0.11	9.59	32.42	94.4

Toxic Impact Assessment

A toxic modeling analysis was performed for facility-wide emissions associated with these modifications. The following substances exceeded their minimum emission rates (MER) and were subject to further analysis: acetone, benzene, hydrogen chloride, hydroquinone, methanol, monochlorobenzene, nickel, hydrogen fluoride, fluorine, chlorine, and acrylic acid. A dispersion modeling analysis using AERMOD was conducted to determine the 15-minute and 24-hour maximum concentrations of these substances from the facility for comparison to their acceptable ambient concentration (AAC). As summarized in the table below, side-wide emissions of each substance were determined to be below the applicable AACs. Detailed calculations may be found in Application No. 29216.

Table 4. TAP Modeling Results

TAP	Averaging Period	AAC ($\mu g/m^3$)	Max Modeled Conc. ($\mu g/m^3$)
Acetone	15-min	178,200	11,948.38853
	24-hour	5,714	1,625.23229
Acrylic Acid	Annual	1	0.24051
Benzene	15-min	1,600	0.39756
	Annual	0.13	0.00465
Chlorine	15-min	300	0.32209
	24-hour	3.6	0.03274
Fluorine	15-min	155.4	0.16140
	24-hour	0.48	0.01641
Hydrogen Chloride	15-min	700	58.46342
	Annual	20	0.54814
Hydrogen Fluoride	15-min	245	23.66054
	24-hour	5.84	2.19857
Hydroquinone	15-min	200	27.56495
	24-hour	4.8	3.46049
Methanol	15-min	32,800	656.75889
	Annual	20,000	4.71675
Monochlorobenzene	24-hour	833	532.55300
Nickel	24-hour	0.794	0.07999

III. Facility Wide Requirements

None applicable.

IV. Regulated Equipment Requirements

Updated Equipment List. **Bold** text indicates changes proposed within the current application.

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
AMODEL PROCESS				
0A17	Hot Oil Heater KB-901	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
0A21	Boiler UB-1210	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
0A22	**Boiler UB-1210-1**	**40 CFR 60 Subpart Dc** **40 CFR 63 Subpart DDDDD** **391-3-1-.02(2)(d)** **391-3-1-.02(2)(g)**	**None**	**None**
0A15	Flare KB-807	391-3-1-.02(2)(b) 391-3-1-.02(2)(g)	None	None

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
A270	HMDAWastewater Tank KD-270	None	None	None
0A6D	Extruder KM-601	391-3-1-.02(2)(b)	0A6A 0A6B C603 KF613	Scrubber KD-610 Scrubber KF-633 Vacuum **Pumps** C603 **B&C** Seal Drum
0A6A	**HMDA Recovery Tank KF-6910**	**None**	**None**	**None**
0A1B	Storage Tank KF-141	None	0A11	Scrubber KF-142
0A2B	Mix Tank KD-260	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	A10A	Scrubber KT-1001 (C1001)
0A2C	Surge Tank KD-266	None	A10A	Scrubber KT-1001 (C1001)
0A9A	Distillation Still KD-806	None	0A8C	Condenser C-803
CONC	Concentrator KD-301	None	A10A 0A15	Scrubber KT-1001 (C1001) Flare KB-807
RCU	Railcar Unloading Station	391-3-1-.02(2)(n)	0A1H	Seal Pot
KM-750 **KF-749**	**Pellet Preheater** **Pellet Hopper Cyclone**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**KH-751**	**Preheater Filter**
KC-757 **KH-759**	**Hot Conveying** **Conveyor Separator**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**
KD-760	**Solid-Stating PFR Silo**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**KH-761**	**Solid-Stating Silo Filter**
KM-780	**Pellet Cooler**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**KH-781**	**Cooler Filter**
KF-749	**Pellet Hopper Cyclone**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**KM-703**	**Pellet Cooler Chips Collector**
KM-750	**Pellet Heater**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**KH-751**	**Preheater Filter**
KH-759	**Conveyor Separator**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**
KD-760	**Solid Stating Silo**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**KH-761**	**Solid Stating Filter**
COMPOUNDING PROCESS				
D6-H1 **D6-H2** **D6-H3**	**Polymer 1 Hopper with Inherent Filter** **Polymer 2 Hopper with Inherent Filter** **Polymer 3 Hopper with Inherent Filter**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
D6-H4 D6-H1b D6-H2b D6-H3b D6-H5 D6-H6 D6-H7 D6-H8 D6-ZSB	Additive 1 Hopper Additive 2 Hopper Additive 3 Hopper Additive 4 Hopper Additive 5 Hopper Additive 6 Hopper Additive 5 and 6 Hopper Product Hopper Feed Hopper	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	D6-H4 B1 D6-H1b B1 D6-H2b B1 D6-H3b B1 D6-H5 BH1 D6-H6 BH1 D6-H7 BH D6-H8 B2 D6-ZSB BH	Baghouses
D6-ZSK-45	Extruder	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
D7-H1 D7-H2 D7-H3 D7-H4	Master Batch Additive Pellet Polymer Pellet Rework	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	D7-H1 BH	Baghouse
D7-H5 D7-H6 D7-H7 D7-H8 D7-H9 D7-H10 D7-H11 D7-H12 D7-H13	Additive 1 Bag with Inherent Filter PPS Hopper with Inherent Filter PPS Hopper with Inherent Filter PPS Hopper with Inherent Filter PPS Hopper with Inherent Filter Additive 1 with Inherent Filter PPS Hopper with Inherent Filter PPS Hopper with Inherent Filter Additive 1 with Inherent Filter	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
D7-H14 D7-H15 D7-H16 D7-H17 D7-H18 D7-H19 D7-H20	Fiberglass Hopper ZSK Feeder ZSK Feeder ZSK Feeder ZSK Feeder Product Hopper Product Hopper	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	D7-H14 BH D7-H15 BH D7-H16 BH D7-H17 BH D7-H18 BH D7-H19 BH D7-H20 BH	Baghouses
D7-H4b D7-H5b D7-H6b D7-H7b D7-H21	Rework with Inherent Filter Polymer Pellet with Inherent Filter Additive Pellet with Inherent Filter Master Batch with Inherent Filter Additive Powder with Inherent Filter	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
D7-ZSK70	Extruder	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
SULFONE PROCESS				
00H1	Hot Oil Heater #1	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
00H2	Hot Oil Heater #2	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
00B8	Waste Heat Boiler LM-731	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 391-3-1-.02(2)(ppp)	0C8A 0C8B 0C7L	Scrubber LT-740 Caustic Scrubber LT-750 Demister
0C2B 0C2X	Storage Tank LF-111 Storage Tank LF-115	40 CFR 63 Subpart FFFF[2]	0C2A	Condenser LE-114
0C5D 0C5E	Storage Tank LD-310 Storage Tank LD-314	40 CFR 63 Subpart FFFF[2]	0C5B	Condenser LE-330
0C6F 0C4I	Feed Tank LD-401 Feed Tank LD-458	40 CFR 63 Subpart FFFF[2]	0C6A **0A1A and 0A1B**	Condenser LE-405 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**
0C4H	Feed Tank LD-430	40 CFR 63 Subpart FFFF[2]	**0A1A and 0A1B**	**Voluntary Carbon Adsorption System LF-1673 and LF-1674**
0C5F 0C5G 0C6J 0C6K 0C6L 0C7D 0C7E 0C8C 0C8F C10H 0C7F 0C64	Feed Tank LD-501 Tank LD-325 Tank LD-601 Feed Tank LD-621 Tank LD-651 Tank LD-701 Storage Drum LD-751 Tank LD-814 Tank LD-852 Drum LD-1201 Drum LD-712 Tank LD-645	40 CFR 63 Subpart FFFF[2,3]	0C7A	Condenser LE-680

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
T470 E471 E472 E473 E475 D475 D476 D477	LT-470 Sulfone Dehydration Tower LE-471 Sulfone Dehydration Tower Feed Preheater LE-472 Sulfone Dehydration Tower Interchanger LE-473 Sulfone Dehydration Tower Reboiler LE-475 Sulfone Dehydration Tower Condenser LD-475 Sulfone Dehydration Tower Condenser Accumulator Drum LD-476 Sulfone Dehydration Tower Overheads Decanter LD-477 Sulfone Dehydration Tower Vent Condenser Accumulator Drum	40 CFR 63 Subpart FFFF[2]	C6F **0A1A and 0A1B**	C6F Condenser LE-477 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**
0C7G T485 H487 T495 H497	Extraction Tower LT-445 Acid Extraction Column II LT-485 Acid Extraction Column II Bottoms Cleaner LH-487 Sulfone Neutralization and Wash Column II LT-495 Sulfone Neutralization and Wash Column II Bottoms Coalescer LH-497	40 CFR 63 Subpart FFFF[2]	0C7B	Condenser LE-448
0C1E	Tank LD-101	391-3-1-.02(2)(b)	0C1A	Scrubber LT-103
0C4D	Reactor LR-201	40 CFR 63 Subpart FFFF[2] 391-3-1-.02(2)(b)	0C2G 0C4A	Condenser LE-208 Emergency Scrubber
0C2E	Reactor Cooler LE-202	40 CFR 63 Subpart FFFF[2]	0C2L	Condenser LE-210 (C4C)
0C3C R385	Tower LT-302 Reactor LR-385	40 CFR 63 Subpart FFFF[2]	0C5A **0A1A and 0A1B**	Condenser LE-309 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**
0C6G	Tower LT-460	40 CFR 63 Subpart FFFF[2]	0C6C **0A1A and 0A1B**	Condenser LE-467 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**
D505 D531 M542 D551	LD505 Crude Crystallizer Feed Drum LD531 Crude Crystallizer LM542 Crude Centrifuge LD551 Crude Reslurry Tank	40 CFR 63 Subpart FFFF[2,3]	~~0C7C~~ **D576** **0A1A and 0A1B**	Condenser LE-576 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
0C7C D564 D568 D612 D521 D523 M522 M642 LT-790 LM-637	Tower LT-711 LD564 Primary Cryst Separator LD568 Primary Cryst Hot Well LD612 Concentrator Condensate Drum LD521 Primary Settler LD523 Centrate Condenser LM522 Primary Centrifuge LM642 Scavenger Centrifuge MCB Cleanup Tower LM637 Centrifuge	40 CFR 63 Subpart FFFF[2,3]	0C7A **0A1A and 0A1B**	Condenser LE-680 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**
LD-466 LD435 LD-800 LD-425 LD-721 LF-1618	Sulfone Dehydration Decanter LD-466 Sulfone Make-up Water Tank LD-435 Sulfone Melt Drum LD-800 (0C8G) Sulfone Recycle Water Tank LD-425 Sulfone Tar Tank LD-721 Sulfone Treated Water Storage Tank LF-1618 (out of service)	40 CFR 63 Subpart FFFF[2]	None	None
LD-671 D664 D668 LD-631	LD-671 Scavenger Crystallizer LD664 Scav Cryst Vac. Liq. Separator LD668 Scav Cryst Hot Well LD-631 Scavenger Crystallizer	40 CFR 63 Subpart FFFF[2]	C7D **0A1A and 0A1B**	Condenser LE-679 **Voluntary Carbon Adsorption System LF-1673 and LF-1674**
LT-790 LD-792 LR-350 LT-363	MCB Cleanup Tower Recycle MCB Purification MIS Cracking MIS Cracking Phase I & II	40 CFR 63 Subpart FFFF[2]	0S7D	Condenser LE-368
LD-367	MIS Cracking Phase III	40 CFR 63 Subpart FFFF[2]	CD363 C7D (Phase II & III)	Carbon Drum Condenser LE-679
LD-425	MCB Cleanup Feed Drum (Phase III)	40 CFR 63 Subpart FFFF[2]	0C7A	Condenser LE-680
LD-797	MCB Cleanup Bottoms Drum (Phase III)	40 CFR 63 Subpart FFFF[2]	C7D	Condenser LE-679
LF-1601	Sulfone Wastewater Equalization Tank LF-1601	40 CFR 63 Subpart FFFF[2]	None	Carbon Bed Absorption
LF-1615	Carbon Bed Transfer Tank	40 CFR 63 Subpart FFFF[2]	None	None
LF-1605	Wastewater Decanter Vent Tank (out of service)	40 CFR 63 Subpart FFFF[2]	None	None
EL	Pumps, agitators, pressure relief devices, valves, connectors, and instrumentation systems	40 CFR 63 Subpart FFFF[2]	None	None
SMW	Maintenance Wastewater	40 CFR 63 Subpart FFFF[2]	None	None

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
Sump 11 Sump 16 Sump 23 Sump 24 Sump 25 Sump 28	Sump located West of LD-411 Sump located near LD-415 Sump located near LD-310/314 dike Sump located near LF-1601 dike Sump located near LF-1601 dike Sump located near LD-310/314 dike	40 CFR 63 Subpart FFFF[2]	None	None
LM-170 **LE-172** **LR-180** **LE-182** **LT-191**	**Burner** **Cooler** **Converter** **Condenser** **Scrubber**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**LT-195**	**SO_2 Scrubber**
None	**Raw Material Storage**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**
LT-485 **LT-495**	**Acid Extraction** **Neutralizer**	**None**	**LE-488**	**Condenser**
LR-320 **LE-331** **LT-333** **LD-335** **LD-791**	**Cracking Reactor** **Condenser** **Scrubber** **Decanter** **Surge Drum**	**40 CFR 63 Subpart FFFF[2]**	**LE-347**	**Condenser**
LH-337	**MIS Cracking Line Coalescer**	**40 CFR 63 Subpart FFFF[2]**	**None**	**None**
LD-441 **LR-375** **LD-585** **LD-688** **LD-788** **LD-880** **LT-681** **LT-781** **LT-881** **LD-890** **LE-782**	**Surge Drum** **Sulfonylation Column** **MCB Surge Drum** **Surge Drum** **Surge Drum** **Surge Drum** **Tower** **Tower** **Tower** **Dissolver Drum** **Condenser**	**None**	**LE-580**	**Condenser**
LM-991	**Line II Melt Crystallizer #1**	**None**	**None**	**None**
LM-992	**Line I Melt Crystallizer #2**	**None**	**None**	**None**
None	**Production Granulation**	**None**	**C13G** **C13H** **C13I**	**Baghouses**
LM-990	**Melt Crystallizer and Feed Drum**	**None**	**None**	**None**
None	**Molten Storage Tanks (3)**	**None**	**None**	**None**
KETASPIRE/NOVASPIRE PROCESS				
PF-800	Emission Unit Group HE-1 HCL Storage Tank	40 CFR 63 Subpart FFFF[2]	SC-2	Scrubber
PR-200	Emission Unit Group HE-2 Process Reactor	40 CFR 63 Subpart FFFF[2]	SC-1	Scrubber
PM-250	Emission Unit Group DE-4 HQ Unloading Station	40 CFR 63 Subpart FFFF[2] 391-3-1-.02(2)(n)	BH-4	Baghouse

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
PH-245 PH-255	Emission Unit Group DE-8 DFBP and HQ Conveying Line	40 CFR 63 Subpart FFFF[2] 391-3-1-.02(2)(n)	BH-8 BH-9	Baghouse
PF-252 PF-260	Emission Unit Group DE-11 HQ Storage Tank and Mix Monomer Bin Vent	40 CFR 63 Subpart FFFF[2] 391-3-1-.02(2)(n)	BH-11	Baghouse
PM-300 PM-301 PM-302	Emission Unit Group DE-13 Fugitive Dust Collector	40 CFR 63 Subpart FFFF[2] 391-3-1-.02(2)(n)	BH-13	Baghouse
PM-710	Emission Unit Group DE-19 Product Packaging	391-3-1-.02(2)(n)	BH-19	Baghouse
BE-01	Hot Oil Heater	40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
BE-02	Boiler	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
PF-502 PF-503 PF-504 PF-506	**Slop Tanks**	**None**	**None**	**None**
PD-401 PD-402 PD-403 PD-404	**Solvent Tanks**	**None**	**CD-1**	**Non-VOC Solvent Condenser**
PH-2261 / PF-2262	**Raw Material Bin Vent**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PH-2261 / PF-2262 BH**	**Baghouse**
PH-2241 / PF-2242	**Raw Material Bin Vent**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PH-2241 / PF-2242 BH**	**Baghouse**
PH / PM-240	**Raw Material Sack Unloading Vent**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PH / PM-240 BH**	**Baghouse**
PF-2260	**Monomer Bin Vent**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PF-2260 BH**	**Baghouse**
PH-2251 / PF-2252	**Raw Material Bin Vent 2**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PH-2251 / PF-2252 BH**	**Baghouse**
PF-260	**Monomer Bin Vent**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PF-260 BH**	**Baghouse**
PD-2203 PD-2204	**Raw Material Termination Pot Vents**	**None**	**None**	**None**
PD-2210	**Raw Material Bin Vent**	**None**	**None**	**None**
PD-286	**Molten Raw Material Bin Vent**	**None**	**None**	**None**
PM-755	**UP Ground Powder**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PM-755 BH**	**Baghouse**
PM-765	**PEEK Ground Powder**	**391-3-1-.02(2)(b) 391-3-1-.02(2)(e)**	**PM-765 BH**	**Baghouse**
PR-2200	**Process Reactor**	**40 CFR 63 Subpart FFFF[2]**	**SC-3**	**Reactor Scrubber**
PM-3100	**Hot Oil Heater**	**40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)**	**None**	**None**
PM-2701 / 2714	**Fluidized Bed Dryer**	**391-3-1-.02(2)(e)**	**None**	**None**
PM-2700	**APNF**	**None**	**None**	**None**

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
PD-440	**Extractor**	**None**	**CD-3**	**Extractor Condenser**
PD-2605	**Distillation Columns, solvent tanks**	**None**	**CD-3**	**Extractor Condenser**
PT-680	**Distillation Columns, solvent tanks**	**None**	**CD-1**	**Non-VOC Solvent Condenser**
XYDAR/VERIAN PROCESS				
00P1	Hot Oil Heater H-601	40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
00P2	Hot Oil Heater H-603	40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
RX01	Reactors R-201 A/B/C	40 CFR 63 Subpart FFFF[A,2] (Xydar Only) 391-3-1-.02(2)(b) 391-3-1-.02(2)(c)	0X2T	Caustic Scrubber T-701
0X2G	Mixer R-202A	40 CFR 63 Subpart FFFF[A,2] (Xydar Only) 391-3-1-.02(2)(b) 391-3-1-.02(2(c)	0X2T 0X2U	Caustic Scrubber T-701 Venturi Scrubber ME- 252A
0X2H	Mixer R-202B	40 CFR 63 Subpart FFFF[A,2] (Xydar Only) 391-3-1-.02(2)(b) 391-3-1-.02(2(c)	0X2T 0X2V	Caustic Scrubber T-701 Venturi Scrubber ME- 252B
0X2I	Mixer R-202C	40 CFR 63 Subpart FFFF[A,2] (Xydar Only) 391-3-1-.02(2)(b) 391-3-1-.02(2(c)	0X2T 0X2W	Caustic Scrubber T-701 Venturi Scrubber ME- 252C
RM01 RM02 RM03	Raw Material Super Sack Unloading V109, V110, V111	40 CFR 63 Subpart FFFF[A,2] (Xydar Only) 391-3-1-.02(2)(n)	0X1P	Baghouse F-146
UDEL PROCESS				
0U4A 0U4B	Tank PD-411 Tank PD-412	40 CFR 60 Subpart Kb	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
0U6A 0U6B	Tank PD-603 Tank PD-604	40 CFR 60 Subpart Kb	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
00C2	Udel Thermal Oxidizer	391-3-1-.02(2)(b) 391-3-1-.02(2)(g)	00C3	Acid Gas Scrubber
0U4D	Reactor PR-401	391-3-1-.02(2)(b)	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
0U7I	Column PT-715	None	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
0U4E	Drum PD-425	None	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
0U2A	Tank PD-202	None	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
0U5A 0U5B	Tank PD-501 Tank PD-502	None	None	None
0U5C	Tank PD-503	None	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
0U6C 0U7A 0U7B 0U7D	Tank PD-610 Tank PD-701 Tank PD-706 Tank PD-719	None	None	None
0U7G	Tank PD-730	None	00C1 00C2 00C3	Udel Vent Condenser Udel Thermal Oxidizer Acid Gas Scrubber
0U7H	Tank PD-735	None	None	None
PUSH PROCESS				
FD01	Unit FD-1220: mDBC Storage	40 CFR 63 Subpart FFFF[2]	FA01	Carbon Drum
FD02	Unit FD-1210:2.5-DCBP Mix Tank	40 CFR 63 Subpart FFFF[2]	FE01 FT01 FA01	Condenser Scrubber Carbon Drum
FD05 FD06 FD07	Unit FR-100: Polymerization Reactor Unit FD-150: Quench Tank Unit FD-130: Catalyst Tank	40 CFR 63 Subpart FFFF[2]	FE02 FA06	Condenser Carbon Drum
FD08	Unit FR-200: Digestion Tank	40 CFR 63 Subpart FFFF[2]	FT02 FA06	Scrubber Carbon Drum Membrane Control (HSS)
FD09 FD11 FD12	Unit FD-215: Feed Tank Unit FD-300: Polymer Slurry Preparation Tank Unit FD-310: Filtrate Collection Tank	40 CFR 63 Subpart FFFF[2]	FE02 FA06	Condenser Carbon Drum

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
FD13	Unit FD-400: 1st Wash Tank	40 CFR 63 Subpart FFFF[2]	FE03 FT03 FA07	Condenser Scrubber Membrane Control (HSS)
FD14 FD15 FD16 FD17 FD18 FD19 FD20 FD21 FD22 FD23 FD24 FD25 FD26 FD27	Unit FD-410: Solvent Hold Tank Unit FD-415: Solvent Hold Tank Unit FD-420: 2nd Wash Tank Unit FD-500: Heat Treatment Vessel Unit FD-605: Dryer Filtrate Tank Unit FD-600: Polymer Dryer Unit FD-710: Antisolvent Batch Column Unit FD-719: Batch Column Receiver Unit FD-720: Process Hold Tank Unit FD-727: Condensate Receiver Unit FD-725: Evaporator Unit FD-709: Spray Condenser Unit FD-731: Batch Still Unit FD-740: Batch Column Receiver	40 CFR 63 Subpart FFFF[2]	FE03 FT03 FA07	Condenser Scrubber Carbon Drum Membrane Control (HSS)
FD28	Units FD-750 and FD-770: Solvent Hold Tank	40 CFR 63 Subpart FFFF[2]	FE02 FA06	Condenser Carbon Drum
FD34 FD35 FD36	Unit FT-790: Distillation Column Unit FD-793: Distillate Receiver Unit FD-905: Vent Header KO Pot	40 CFR 63 Subpart FFFF[2]	FE03 FT03 FA07	Condenser Scrubber Carbon Drum Membrane Control (HSS)
FM01	Alcohol Tote	40 CFR 63 Subpart FFFF[2]	FA04	Carbon Drum
FM03	HCl Tote	40 CFR 63 Subpart FFFF[2]	None	None
FM04	Unit FM-312: Polymer Slurry Centrifuge	40 CFR 63 Subpart FFFF[2]	FE02 FA06	Condenser Carbon Drum
FF03 FF04	Unit FF-700: Spent Solvent Storage Tank Unit FF-780: Alcohol Storage Tank	40 CFR 63 Subpart FFFF[2]	FE03 FT03 FA07	Condenser Scrubber Carbon Drum Membrane Control (HSS)
FF05	Unit FF-705: Solvent Hold Tank	40 CFR 63 Subpart FFFF[2]	FE03 FA07	Condenser Carbon Drum Membrane Control (HSS)
FF06	Unit FF-800: Wastewater Collection Tank	40 CFR 63 Subpart FFFF[2]	FE03 FT03 FA07	Condenser Scrubber Carbon Drum Membrane Control (HSS)

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
FF07	Terminating Agent Tank	40 CFR 63 Subpart FFFF[2]	FE02 FA06	Condenser Carbon Drum
PROJECT SARSAPARILLA				
HD-1800 **HD-1801**	**Thermal Oxidizer Gas Buffers**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer Scrubbers**
HD-1810	**Thermal Oxidizer Heavies**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer Scrubbers**
HD-102 A/B/C/D	**R142b Storage Tanks**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**
HD-152 A/B/C/D	**VDF Storage Tanks**	**40 CFR 60 Subpart Kb** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**
HF-1811 A/B/C	**HCl Storage Tanks**	**40 CFR 63 Subpart FFFF[1]** **40 CFR 63 Subpart NNNNN** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HT-1811**	**HCL Storage Scrubber**
HT-203 **HT-223**	**VDF Caustic Scrubber**	**40 CFR 63 Subpart FFFF** **40 CFR 63 Subpart NNNNN** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer*** Scrubbers**
HD-212 **HD-204** **HD-232**	**Pyrolysis Cyclones**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HT-1810** **HB-1800/1801** **HT-1800/1801**	**Emergency Relief Scrubber** OR Thermal Oxidizer*** Scrubbers**
HD-213 **HD-205** **HD-233**	**Pyrolysis Cyclone Solids Collectors**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HT-1810** **HB-1800/1801** **HT-1800/1801**	**Emergency Relief Scrubber** OR Thermal Oxidizer*** Scrubbers**
HE-213 **HE-223** **HE-233**	**MP Steam Production Boilers**	**391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**None**	**None**
HB-211 **HB-221** **HB-231**	**Cracking Furnaces**	**40 CFR 63 Subpart DDDDD** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HT-1810**	**Emergency Relief Scrubber** OR Thermal Oxidizer*** Scrubbers**
HD-306 **HD-326**	**R142b Rectification Reflux Drum**	**40 CFR 63 Subpart FFFF** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer Scrubbers**
HT-306 **HT-326**	**R142b Rectification Column**	**40 CFR 63 Subpart FFFF** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer*** Scrubbers**
HT-305[1] **HT-325**	**Lights Column**	**40 CFR 63 Subpart FFFF[1]** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer*** Scrubbers**
HT-304 **HT-324**	**VDF Rectification Column**	**40 CFR 63 Subpart FFFF** **391-3-1-.02(2)(b)** **391-3-1-.02(2)(e)**	**HB-1800/1801** **HT-1800/1801**	**Thermal Oxidizer*** Scrubbers**

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
HC-203 HC-233	Organic Gas Compressor	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
HD-294 HD-296	Water Accumulation Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-293 HD-295	Molecular Sieve Dryer Regeneration Water Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-203 A/B/C HD-223 A/B/C	Molecular Sieve Dryer	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
HT-201 HT-221	HCl Absorption Column	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HT-1810 HB-1800/1801 HT-1800/1801	Emergency Relief Scrubber** OR Thermal Oxidizer*** Scrubbers
HT-202 HT-222	HCl Absorption Lateral Stripper	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HT-1810 HB-1800/1801 HT-1800/1801	Emergency Relief Scrubber** OR Thermal Oxidizer*** Scrubbers
HT-200 A/B HT-230 A/B	Alumina Tower	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HT-1810 HB-1800/1801 HT-1800/1801	Emergency Relief Scrubber** OR Thermal Oxidizer*** Scrubbers
HF-771 HF-772 HM-700 HN-785 HF-773 HF-774 HF-775 HF-776	Powder Storage and Distribution System	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HH-771 HH-772 HH-773 HH-774 HH-775 HH-776	Silo 1/2/3/4/5/6 Baghouses
HD-505 HD-506	Degassing Vacuum System Liquid/Gas Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HC-468	Moist Process Suction Blower	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HT-865	Alkaline Scrubber	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-500	Purging Vacuum System Liquid/Gas Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-852	Recovered COMO1 Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-514 HD-524 HD-534	Line 1 Degassers	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
HD-544 HD-554 HD-564	Line 2 Degassers	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HR-510 HR-520 HR-530	Line 1 Polymerization Reactors	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HR-540 HR-550 HR-560	Line 2 Polymerization Reactors	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-510 A/B HD-520 A/B HD-530 A/B	Line 1 Inhibitor Tanks 1 and 2	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-540 A/B HD-550 A/B HD-560 A/B	Line 2 Inhibitor Tanks 1 and 2	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-440	Reactor Washing System Pressurization Package	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-464	ALC2 Bag Dump Station	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HP-478	Process Suction Baghouse****
HD-464	ALC2 Prep and Loading Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-422	X3 Prep and Feeding Vessel	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-450	COMO3 Batching Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-452	COMO3 Batching Tank 2	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-460	COMO7 Prep Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-461	COMO6 Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-428	SA4 Loading Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-428	SA4 Bag Dump Station	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HP-478	Process Suction Baghouse****
HD-458	SA4 Prep Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-462	SA 2/3 Prep Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-463	SA 2/3 Bag Dump Station	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HP-478	Process Suction Baghouse****
HD-463	SA2 Loading Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-465	SA3 Loading Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-415 HD-474 HD-478	MONO Storage Tank MONO Storage Tank COMO1 Storage Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-401 HR-402	X1 Storage Vessel X1 Dosing Vessel	40 CFR 63 Subpart FFFF 391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HT-493	X2 and X4 Scrubber
HR-474 HR-476 HD-476	X2 and X4 Reactor X2 Dosing Vessel X2 Storage Vessel	40 CFR 63 Subpart FFFF 391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HT-493	X2 and X4 Scrubber

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
HD-485	X4 Storage Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-643 HF-645	Line 2 Washing Dewatering Device Liquid/Gas Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-866 HD-867	MONO Recuperation System Dryer 1 MONO Recuperation System Dryer 2	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
HD-856 A/B HD-857 HD-858 A/B	COD Reduction Stripping Vessel Wastewater to Stripping Vessel Stripped Wastewater Vessel	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HC-875/A	Gas Compressor	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
HD-876	Liquefied Gas Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-878	Off Gas Buffer Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
HT-870	Lights Separation Column	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
HT-880	MONO Separation Column	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HD-885	Recycled MONO Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer*** Scrubbers
HT-830	COMO1 Column	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HB-1800/1801 HT-1800/1801	Thermal Oxidizer Scrubbers
None	Wastewater pH Neutralization Process	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-710 HF-720 HF-730 HF-740 HM-711 HM-721 HM-731 HM-741	Packaging Silos and Machines	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HH-710 HH-720 HH-730 HH-740 HP-775 HP-779	Baghouses
HF-423	Line 2 COMO3 Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-413	Line 1 COMO3 Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-440	Concentrated COMO3 Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HT-493	X2 and X4 Scrubber
HC-467 A/B	Water Degassing Vacuums	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
HF-610 HF-611	Line 1 Slurry Treatment Tanks	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HE-680	Vent Condenser
HF-620 HF-621	Line 2 Slurry Treatment Tanks	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HE-680	Vent Condenser
HF-677 HF-673	Line 1 Washing Dewatering Device Vacuum System Liquid/Gas Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-611	Line 1 Washing Dewatering Device	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-621	Line 2 Washing Dewatering Device	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-610	Line 1 Dryer	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HH-610	Line 1 Drying Baghouse
HF-687 HF-685	Line 1 Dryer Dewatering Device Vacuum System Liquid/Gas Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-686	Line 1 Recovered Water Storage Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-612	Line 1 Dryer Dewatering Device	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-612 HF-613	Line 1 Slurry Storage	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HD-620	Line 2 Dryer	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	HH-620	Line 2 Drying Baghouse
HF-697 HF-695	Line 2 Dryer Dewatering Device Vacuum System Liquid/Gas Separator	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-696	Line 2 Recovered Water Storage Tank	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HM-622	Line 2 Dryer Dewatering Device	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HF-622 HF-623	Line 2 Slurry Storage	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
HT-862 HD-871	Ethanol Tower Ethanol Storage	391-3-1-.02(2)(b) 391-3-1-.02(2)(e)	None	None
UB-1310	Boiler UB-1310	40 CFR 60 Subpart Dc 40 CFR 63 Subpart DDDDD 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None

* Generally applicable requirements contained in this permit may also apply to emission units listed above. The lists of applicable requirements/standards are intended as a compliance tool and may not be definitive.

****Flow to emergency scrubber is only during malfunctions.**

*****Any emissions will ultimately end in the thermal oxidizer after traveling through other process equipment.**

******Baghouse in use when dumping powder into tanks.**

[1]MON Group 1

[2]MON Group 2

[3]MON Group 2 with TRE between 1.9 and 5.0

[A]The Xydar process is subject to MON only when using HAP as a raw material.

New equipment and revisions were also added to the insignificant activities table (based on emission levels) in Attachment B of the permit amendment.

C. Equipment & Rule Applicability

391-3-1-.02(2)(b) – Visible Emissions

This rule regulates emissions from emission sources to no greater than 40 percent opacity except as provided by more restrictive or specific rules. The emissions from equipment within the existing processes below are subject to this requirement.

- Amodel: Flare KB-807, Extruder KM-601, and Mix Tank KD-260
- Sulfone: Tank LD-101 and Reactor LR-201
- Xydar: Reactors R-201 A/B/C and Mixers R-202 A/B/C

The following new and modified equipment associated with Application 29216 will be subject to this rule as well (See Table 3.1.1 for a list of new equipment subject to Georgia Rule (b)):

- Amodel: Solid stating equipment
- Sulfone: Raw material production process
- Compounding process
- Sarsaparilla process

391-3-1-.02(2)(d) – Fuel Burning Equipment

This rule regulates emissions from fuel burning equipment. The new KetaSpire/NovaSpire oil heater has a heat input capacity rated at less than 10 MMBtu/hr and is subject to this rule. The new Sarsaparilla and Amodel boilers each have a heat input capacity rated at 99.5 MMBtu/hr and are subject to the PM requirements of this rule. The facility will comply with the rule through the use of natural gas and fuel oil as a backup.

391-3-1-.02(2)(e) – PM Emissions from Manufacturing Processes

This rule regulates PM emissions on a pound per hour basis using the following equations: for process weights up to 30 tph: $E = 4.10P^{0.67}$; for process weights greater than 30 tph: $E = 55P^{0.11} – 40$; where E = the allowable emission rate in lb/hr and P = the process weight rate in tons per hour (tph). The modified Amodel, KetaSpire/NovaSpire, and Sulfone processes, as well as the new Sarsaparilla process, are subject to this rule and the facility will continue to comply with the allowable emission rates.

391-3-1-.02(2)(g) – SO_2 Limits from Fuel-Burning Sources

This rule limits the sulfur content in fuel burned to not more than 2.5 percent sulfur by weight for sources rated at a heat capacity below 100 MMBtu/hr. The facility complies with this rule through the use of natural gas and distillate fuel oil with a sulfur content of less than 0.5 percent by weight, per 40 CFR 60 Subpart Dc requirements. The new boilers and hot oil heater are each rated at less than 100 MMBtu/hr heat capacity and will fire only natural gas or distillate fuel oil.

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

Subpart Dc regulates fuel-burning equipment with heat capacities between 10 MMBtu/hr and 100 MMBtu/hr constructed, modified, or reconstructed after June 9, 1989. New Amodel Boiler UB-1210-1 and new Sarsaparilla Boiler UB-1310 are each rated at 99.5 MMBtu/hr and will be installed after the compliance date; therefore, these units are subject to Subpart Dc. The facility will comply with Subpart Dc requirements through the use of natural gas, with No. 2 fuel oil as a backup during periods of natural gas curtailment. Fuel oil limits will apply during these times. Solvay requests a limit of 0.5 percent sulfur by weight for the new boilers to be exempted from PM limits, testing, and monitoring.

Units over 30 MMBtu/hr that burn fuel oil are subject to opacity limits under 40 CFR 60 Subpart Dc. In order to demonstrate compliance with the opacity limit, these boilers are subject to the initial performance test requirements specified in 40 CFR 60.45c(a) and subsequent "periodic monitoring" requirements specified in 40 CFR 60.47c(a)(1) or (a)(2), depending on the most recent test results. These testing requirements have been added to the permit to reflect the applicable Subpart Dc requirements consistent with other Georgia facilities. In addition, these boilers are subject to the fuel combustion tracking requirements of existing Condition 6.2.5 and 40 CFR 60.48c(g)(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, and on or Before October 4, 2023

Subpart Kb regulates storage vessels with a capacity in excess of 75 m^3 (19,813 gal) used to store volatile organic liquid (VOL) that were constructed, modified, or reconstructed after July 23, 1984. The proposed new vessel for the Compounding process will have a capacity of less than 19,813 gal and is not subject to Subpart Kb. The proposed new tanks for the KetaSpire/NovaSpire and Sulfone processes are considered process tanks, as defined below:

> *Process tank means a tank that is used within a process (including a solvent or raw material recovery process) to collect material discharged from a feedstock storage vessel or equipment within the process before the material is transferred to other equipment within the process, to a product or by-product storage vessel, or to a vessel used to store recovered solvent or raw material. In many process tanks, unit operations such as reactions and blending are conducted. Other process tanks, such as surge control vessels and bottoms receivers, however, may not involve unit operations.*

Process tanks are specifically excluded from the regulation. Therefore, the requirements of this regulation do not apply to these tanks.

The Sarsaparilla process will include process tanks as well; however, two tanks, which will store VDF and 142b, are potentially considered VOLs and have a capacity greater than 75 m^3. The storage pressure of 142b and VDF exceeds 100 psig. This rule specifically exempts pressure vessels designed to operate in excess of 204.9 kPa (29.7 psi) and without emissions to the atmosphere. The Solvay facility will use vapor balancing or pressurization to eliminate emission during loading, and these tanks will not vent to atmosphere during normal operations.

40 CFR 63 Subpart FFFF – NESHAP for Miscellaneous Organic Chemical Manufacturing (MON)

This subpart applies to major sources of HAP that produce a MON chemical. Solvay is subject to MON requirements because it is a major source with MON-regulated sources. The modifications to the existing processes (Sulfone, KetaSpire/NovaSpire, and Xydar) are potentially subject to MON. As such, the facility will continue to comply with all applicable Subpart FFFF regulations for these existing processes.

The new Compounding process is potentially subject to Subpart FFFF due to its continuous process vents (CPVs) and the use of a raw material which produces methanol as a byproduct. The majority of methanol produced will be captured by a liquid ring vacuum pump and discharged in a wastewater stream, which is categorized as a "group 2" stream. Solvay will demonstrate compliance with recordkeeping and reporting requirements through compliance with existing Condition 6.2.14. Testing to verify the status of the liquid ring vacuum pump is required.

The changes to the Sulfone Process do not result in any MON status changes. All applicable vents and tanks within this process remain Group 2. MCB is the only HAP present in the Sulfone process's wastewater, which is a Table 8 compound. Its concentration within applicable streams with sufficient flow to exceed the applicability criteria is less than 1,000 ppmv; therefore, these streams are Group 2 wastewater streams. There are six sumps located in the process that are considered Group 2 wastewater streams. Additionally, the wastewater equalization tank (LF-1601) is required to have a fixed room. The proposed changes are not expected to increase MCB in any wastewater streams.

The Sarsaparilla process is also subject to Subpart FFFF as it will use 142b as a primary raw material and produces organic halogens as well as hydrogen halide and halogen HAP, e.g., HF and HCl. Subpart FFFF requirements will include emission limitations for Group 1 continuous process vents, halogenated vents, Group 1 storage tanks, and equipment leaks. Solvay will maintain compliance with existing permit conditions relating to LDAR under Subpart FFFF. Closed vent requirements are now included in the permit to address the addition of vents subject to Group 1 controls.

Changes in the permit will also address changes to Subpart FFFF under amendments to the rule finalized on August 12, 2020 and on April 4, 2024. These include elimination of SSM exemptions, adding new safety and pressure relief requirements, and minor changes to LDAR requirements.

As a result of the modifications to the Sulfone process, Condensers LE-679, LE-680, and LE-576 will have calculated totel resource effectiveness (TRE) values between 1.9 and 5.0, which will redesignate the condensers as "Low Group 2 vents" under Subpart FFFF. Low Group 2 vents require condensers that are considered final recovery devices to maintain the TRE between 1.9 and 5.0 and be monitored continuously either via the outlet concentration or a condenser exit (product side) temperature. The facility submitted a letter, dated November 5, 2024, requesting approval for an alternative monitoring procedure (AMP) due to monitoring of the product side temperature being inaccurate and technically infeasible. The Division has agreed and approved the AMP for TRE compliance by continuously monitoring the coolant exit temperatures of the condensers in accordance with 40 CFR 63.993 requirements.

40 CFR 63 Subpart DDDDD – NESHAP for Major Sources: Industrial-Commercial-Institutional Boilers and Process Heaters (Boiler MACT)

This standard applies to all facilities that own or operate an industrial, commercial, or institutional boiler or process heater that is located at a major source of HAP. The Solvay facility is currently a major source of HAP and is and will continue to be subject to this subpart. The Sarsaparilla process includes several combustion devices: one gas-fired boiler, three gas-fired furnaces, and two thermal oxidizers. The thermal oxidizers are not subject to this rule because they do not meet the definition of boiler or process heater based on review of their proposed design. The boiler is subject to the regulation, but there are not any emission limits because it is a gas-1 boiler. The furnaces are process heaters as defined under this rule; thus they are subject. As with the gas-fired boilers, there are no emission limits because these units are in the gas-1 category. Note that the process gases being pyrolyzed in the furnace do not come into contact with the combustion gases and are subject to the requirements of another MACT, 40 CFR 63 Subpart FFFF. The applicable Boiler MACT requirements for the new boiler and combustion emissions from furnaces are confined to a requirement to conduct periodic tune-ups.

40 CFR 63 Subpart NNNNN – NESHAP for Hydrochloric Acid (HCl) Production

This standard applies to facilities that produce a liquid HCl product at a concentration of 30 weight percent or greater during its normal operations. Solvay will produce a 30% or greater by weight solution as part of the VDF process. The solution will initially be neutralized on site using lime. The resulting neutralized material is filtered to remove solids which will be disposed of in a landfill. The liquid portion will be discharged to the local POTW. Because the initial design does not include production of an HCl product, this regulation does not apply to initial operations.

Solvay requested that the permit allow for an operating scenario where the HCl solution is sold as a commercial project. Under this operating scenario, the 'HCl production facility' is subject to the requirements of Subpart NNNNN. As such, Solvay requested that GA EPD add the applicable requirements for this alternate operating scenario to the permit. The rule applies to the following:

- Process vents
- Storage tanks
- Transfer operations
- Equipment leaks
- Wastewater operations

Per the rule, "there are no emission limitations or other requirements in this subpart that apply to HCl wastewater operations." The wastewater operations are part of the affected sources nonetheless. Because this operation will be constructed after September 18, 2001, it is considered a new source. Solvay will operate process vents, tanks, transfer operations, and equipment subject to leak requirements potentially subject to emission limits and work practice standards. Table 1 of the rule specifies the emission control options for compliance with the rule. Solvay will operate caustic scrubbers on the process vents, storage tanks, and transfer operations to reduce emissions below the requirements specified in Table 1. The applicable compliance options are listed as follows:

For HCl process vents:

- Reduce HCl emissions by 99.4 percent or greater or achieve an outlet concentration of 12 ppm by volume or less; and

- Reduce Cl_2 emissions by 99.8 percent or greater or achieve an outlet concentration of 20 ppm by volume or less.

For HCl storage tanks:

- Reduce HCl emissions by 99.9 percent or greater or achieve an outlet concentration of 12 ppm by volume or less.

For HCl transfer operations:

- Reduce HCl emissions by 99 percent or greater or achieve an outlet concentration of 120 ppm by volume or less

The applicable monitoring requirements for caustic scrubbers are scrubber inlet liquid or recirculating liquid flow rate and pH. Solvay will establish the operating limits based on performance testing after startup. Solvay will also develop an LDAR plan that describes the measures put in place to detect and repair leaks from equipment (e.g., pumps, compressors, valves, connectors, etc.) that contacts liquid HCl streams with a concentration of greater than 30% and vapor streams with a concentration greater than 5%.

Regulations That Are Not Applicable

40 CFR 60 Subparts W, III, RRR, and NNN – Standards of Performance for Synthetic Organic Chemicals Manufacturing Industry (SOCMI)

These subparts apply to facilities that manufacture a SOCMI chemical as listed in 40 CFR 60.489, 60.617, 60.707, and 60.667. The existing Solvay processes (PUSH, Sulfone, Amodel, KetaSpire, and Verian) and the new Sarsaparilla process may use listed chemicals as raw materials; however, Solvay does not manufacture any of the listed chemicals. Therefore, these subparts are not applicable.

40 CFR 61 Subparts J, Y, V, BB, and FF – National Emission Standards for Hazardous Air Pollutants for Benzene Operations

These standards apply to benzene operations as defined in the applicable regulations. Since the proposed operations and new Sarsaparilla process may contain benzene, these regulations are potentially applicable. Benzene is created as a product of degradation of raw material used in the process. Applicability criteria and thresholds are described below.

Storage vessels less than 10,000 gallons capacity are exempted. Solvay does not currently nor does it plan to operate any storage vessels with a capacity of greater than 10,000 gallons that store benzene; thus, the storage vessel provisions do not apply.

Benzene waste operations that exceed 11 tpy of benzene in all waste streams are subject to provisions for wastes. The Solvay facility does not and will not produce benzene at a rate that exceeds 11 tpy. Benzene concentrations in proposed processes will be less than 10 ppmw.

Leak Detection and Repair (LDAR) requirements apply to equipment which contacts a fluid with a concentration of greater than 10 percent benzene by weight. Solvay does not have any streams that have greater than 10 percent benzene by weight.

40 CFR 63 Subparts F, G, H, and I – NESHAPs for the Synthetic Organic Chemicals Manufacturing Industry (SOCMI)

These subparts regulate HAPs listed in Table 1 of 40 CFR 63 Subpart F which are produced by chemical manufacturing facilities. Solvay utilizes HAPs listed in Table 1 in the Sulfone and Xydar processes but the facility does not manufacture these HAPs. Therefore, these subparts are not applicable.

40 CFR 63 Subpart EEEE – NESHAP: Organic Liquids Distribution (Non-Gasoline)

The applicability of this standard, referred to as the Organic Liquid Distribution (OLD) Maximum Achievable Control Technology (MACT), is determined by the material(s) stored and transferred into or out of the facility. The standard exempts equipment subject to the requirements of another 40 CFR 63 NESHAPs. Since the Xydar, Sulfone, PEEK, and PUSH processes are subject to 40 CFR 63 Subpart FFFF (MON), they are exempt from this regulation. The Compounding process modifications include addition of a 12-litre storage vessel to feed the process. Because it does not contain any HAP, it is not subject to this rule. The KetaSpire/NovaSpire project includes eight new vessels; however, these are process tanks and the material contained in these tanks is non-VOC and non-HAP solvent with water. The Sarsaparilla process will be subject to Subpart FFFF and is exempt from this regulation. Therefore Subpart EEEE is not applicable.

D. Permit Conditions

Condition 3.2.1 limits total facility-wide emissions of SO_2 and NO_X from specific equipment to 100 tpy each for PSD avoidance. The condition was revised to include new equipment from the current modifications and the new Sarsaparilla process.

Condition 3.3.4 requires the facility to comply with 40 CFR 60 Subpart Dc requirements for specific equipment. It was revised to include new equipment from the current modifications and the new Sarsaparilla process.

Conditions 3.3.5 limits the sulfur content of fuel oil fired in specific combustion equipment to 0.5 percent by weight, per Subpart Dc and Georgia Rule (g). It was revised to include new equipment from the current modifications and the new Sarsaparilla process.

Condition 3.3.6 outlines opacity requirements for specific combustion equipment, per Subpart Dc and Georgia Rule (d). It was revised to include new equipment from the current modifications and the new Sarsaparilla process.

Condition 3.3.8 referenced an SSM plan per previous requirements of Subpart FFFF. This rule has since been updated and the SSM requirements no longer apply; therefore, this condition was removed.

Conditions 3.3.11, 3.3.14, and 3.3.19 previously specified Subpart UU requirements only for the Sulfone and/or Xydar MCPUs. These requirements are applicable to all HAP-containing equipment that is not otherwise exempt due to low concentrations, vacuum service, <300 hours of service, etc. The new Sarsaparilla Process will have nonexempt equipment. The conditions were modified to include each applicable MCPU, or to delete the more specific language.

Condition 3.3.12.c contained a Subpart FFFF compliance requirement as an alternative to Subpart UU requirements for leaks. It was removed as it no longer applies.

Condition 3.3.25 requires the facility to comply with 40 CFR 63 Subpart DDDDD requirements for specific equipment. It was revised to include new equipment from the current modifications and the new Sarsaparilla process.

New Conditions 3.3.27 through 3.3.34 were added outlining emission limits and work practice standards per Subpart FFFF and 40 CFR 63 Subpart SS. Some of these requirements, such as those for pressure relief devices, were added to the regulation on August 12, 2020. Other requirements, such as those for Subpart SS, were previously excluded due to the facility having no Group 1 control requirements.

Conditions 3.4.1 and 3.4.2 outline opacity and particulate matter requirements, respectively, from applicable equipment per Georgia Rules (b) and (e). They were revised to delete the table specifying applicable equipment, as the new processes will have a significant amount of units subject to these Georgia Rules.

Conditions 3.4.3 and 3.4.4 outline the opacity and particulate emission requirements of Georgia Rule (d). These conditions were updated with new combustion equipment.

New Condition 3.4.8 outlines the requirements of Georgia Rule (n). These requirements outline actions that may be taken to prevent fugitive dust. Several of the operations associated with this modification include potential fugitive dust sources. The condition was added to be consistent with other similar Georgia facilities

Condition 3.5.4 limits the sulfur content of fuel oil fired in specific combustion equipment to 0.5 percent by weight, per Georgia Rule (g). It was revised to include new equipment from the current modifications and the new Sarsaparilla process.

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

Condition 4.1.3 was revised to include a method for determining concentrations of HCl.

New Condition 4.2.6 was added to establish the SO_2 emission factor for use in demonstrating compliance with Condition 3.2.1 once the 100 Area Sulfone raw material production process commences operation.

New Condition 4.2.7 was added to require a performance test for HF from the SC-1 and SC-3 reactor scrubbers to confirm the Group 2 MON status for the associated vents once the KetaSpire/NovaSpire processes are modified to increase production and/or add production in the PR-200/PR2200 Reactors.

New Condition 4.2.8 was added requiring the facility to conduct tests on the vacuum pump vent in the Compounding process to verify the associated TRE calculations.

New Condition 4.2.9 was added requiring the facility to conduct initial performance tests for Condensers LE-679, LE-576, and LE-680 to verify TRE values and to establish an operating range for each condenser exit temperature. These condensers operate as final recovery devices with TRE values estimated to be above 1.9 but below 5.0; these values need to be verified.

New Condition 4.2.10 was added requiring the facility to conduct performance testing on the Thermal Oxidizers and each Thermal Oxidizer Scrubber as required by 40 CFR 63 Subpart FFFF.

New Condition 4.2.11 was added requiring the facility to conduct a performance test on the HCl Storage Tank Scrubber once placing those tanks into HCl service, per requirements of 40 CFR 63 Subpart FFFF. If the facility wishes to store the HCl with the purpose of making it available for sale, additional requirements per 40 CFR 63 Subpart NNNNN are necessary and are included in Section 7.0 of the permit.

New Condition 4.2.12 was added requiring the facility to conduct an initial performance test on applicable boilers per Subpart Dc requirements. New Conditions 4.2.13 and 4.2.14 were added detailing requirements for subsequent opacity testing.

New Condition 4.2.15 was added requiring the facility to test for VOC emissions to establish emission factors and/or control efficiency for compliance with the limit in Condition 3.2.1.

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

Condition 5.2.1 outlines specific parameters for continuous monitoring and recordkeeping. During review of the application and permit, it was noted that continuous monitoring was required by this condition; however, a less frequent monitoring was also specified within the condition for most parameters listed. To address this discrepancy, New Condition 5.2.3 was added for parameter monitoring that is not to be continuous. Relevant paragraphs of Conditions 5.2.1 and 5.2.3 were revised or added to include references to new equipment from the current modifications.

Monitoring for outlet coolant temperature for Condensers 0C7A, C7D, and D576 were specifically included in Condition 5.2.1. These condensers operate as final recovery devices with TRE values estimated to be above 1.9 but below 5.0. As such, they have continuous monitoring and recordkeeping requirements that are not associated with other condensers at the facility.

New Condition 5.2.4 was added requiring the facility to monitor daily pressure drop rates for new control equipment associated with Application No. 29216.

New Condition 5.2.5 was added to address monitoring requirements for dust collection devices. The Division's Potential-To-Emit Guidelines allows facilities to use the design control efficiency or maximum controlled emission rate, as listed in the air quality permit application, to calculate PTE in lieu of the Rule (e) emission rate provided that the permit includes monitoring that is sufficient to ensure good air pollution control practice for minimizing emissions. The monitoring must be no less frequent than once per day. These conditions provide for monitoring consistent with similar sources and good air pollution control practices.

New Condition 5.2.6 was added to require daily VE checks for the dust collectors and baghouses.

New Condition 5.2.7 was added to include 40 CFR 63 Subpart FFFF requirements for continuous parameter monitoring systems.

New Condition 5.2.8 was added to include the requirement to install flow monitoring at the inlet or outlet of any control device to identify periods of no flow. These are necessary in order to calculate valid 24-hour averages per for CFR 63 Subpart FFFF.

VII. Other Record Keeping and Reporting Requirements

Condition 6.1.7 outlines excess emissions, exceedances, and excursions to be reported in accordance with Condition 6.1.4.

New Conditions 6.1.7.b.iii through 6.1.7.b.vi were added to specify the exceedances associated with the 100-ton limits on SO_2, NO_X, VOC, and CO emissions. These have been mistakenly omitted in previous versions of the permit.

New Condition 6.1.7.b.vii was added to specify as an exceedance burning fuel that does not meet the required sulfur content requirements. This has been mistakenly omitted in previous versions of the permit.

Conditions 6.1.7.c.iv. and Condition 6.1.7.c.xvi. were revised to include references to new equipment from the current modifications.

New Condition 6.1.7.c.iv.(A) was added to the permit to address excursions of outlet coolant temperature for Condensers 0C7A, C7D, and D576. These condensers operate as final recovery devices with TRE values estimated to be above 1.9 but below 5.0, and these have continuous monitoring and recordkeeping requirements that are not associated with other condensers at the plant.

New Conditions 6.1.7.c.xix. through 6.1.7.xxvi. were added to include excursions for new Sarsaparilla process equipment.

New Conditions 6.1.7.c.xxvii through 6.1.7.c.xxvix were added to define appropriate baghouse and/or dust collector monitoring excursions associated with the added inspections and monitoring for these devices.

Condition 6.2.13 requires the facility to maintain records of venting incidences for specific condensers. It was revised to include references to new condensers from the current modifications.

Condition 6.2.20 was modified to address changes to the reporting requirements of 40 CFR 63 Subpart FFFF that were added on August 2020. The reporting requirements associated with Group 1 controls that were previously omitted were also added, as these are now applicable to certain processes.

Condition 6.2.21 was modified to address the Subpart FFFF updates, to delete obsolete references to specific MCPUs, and to include recordkeeping that was previously not applicable to the facility.

The headings for 40 CFR 63 Subpart FFFF and 40 CFR 63 Subpart UU were modified to omit references to specific processes, as the applicability of these requirements has now expanded to additional MCPUs.

New Conditions 6.2.22 through 6.2.29 were added establishing recordkeeping and reporting requirements per Subpart SS, Subpart UU, and Subpart FFFF requirements.

New Condition 6.2.30 was added requiring the facility to maintain records of operating hours for HT-305 when it doesn't vent to a thermal oxidizer.

New Condition 6.2.31 requires the facility to notify the Division of actual startup dates of all new and modified process equipment specified in Application 29316.

New Condition 6.2.32 requires the facility to notify the Division of the actual startup date of Boilers UB-1310 and UB-1210-1 per Subpart Dc requirements.

VIII. Specific Requirements

A. Operational Flexibility

The Company requested that the permit allow for an operating scenario where a HCl solution generated in the Sarsaparilla process is sold as a commercial project. Prior to this alternative being exercised, the HCl generated would be neutralized on site using lime, filtered to remove solids, and then the liquid portion would be discharged to the local POTW while the solids would be taken to a landfill. Selling the HCl solution would trigger the facility being defined as a "HCl production facility" and becoming subject to 40 CFR 63 Subpart NNNNN, National Emissions Standards for Hazardous Air Pollutants: Hydrochloric Acid Production." These requirements have been added to section 7.0 of the permit.

Condition 7.3.1 contains the general requirement for compliance with 40 CFR 63 Subpart NNNNN. It also includes a notification requirement to the Division of the intent to exercise this alternative scenario.

Condition 7.3.2 includes applicable requirements for control of HCl process vents, HCl storage tanks, HCl transfer operations, and for equipment leaks.

Condition 7.3.3 includes the applicable performance testing requirements of Subpart NNNNN control devices.

Condition 7.3.4 includes the subsequent performance test requirements for Subpart NNNNN.

Condition 7.3.5 includes the parameter monitoring and recordkeeping required for control devices subject to Subpart NNNNN.

Condition 7.3.6 includes the continuous monitoring system requirements associated with Subpart NNNNN.

Condition 7.3.7 includes the recordkeeping for monitoring parameters as required by 40 CFR 63.9035.

Condition 7.3.8 includes the requirements for continuous monitoring as specified in Subpart NNNNN.

Condition 7.3.9 includes the Notification of Compliance Status report requirements of Subpart NNNNN.

Condition 7.3.10 specified the requirements of semiannual compliance reports as required by Subpart NNNNN.

Condition 7.3.11 specifies all applicable records required to be maintained by Subpart NNNNN.

Addendum to Narrative

The 30-day public review started on November 20, 2024 and ended on December 20, 2024. Comments were not received by the Division.