Facility Name: **SNF-Riceboro**
City: Riceboro
County: Liberty
AIRS #: 04-13-179-00011 Application #: 668911

Date SIP Application Received: July 7, 2022
Date Title V Application Received: July 7, 2022
Permit No: 2899-179-0011-V-04-1

Program	Review Engineers	Review Managers
SSPP	Tyneshia Tate	Heather Brown
SSCP	Vincent Jenkins	Daniel Slade
ISMU	Marcus Cureton	Dan McCain
TOXICS	Sherry Waldron	William Fleming
Permitting Program Manager		Stephen Damaske

Introduction

This narrative is being provided to assist the reader in understanding the content of the referenced SIP permit to construct and proposed 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 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
2899-179-0011-V-04-0 App No. 487070	9/7/2022	Title V Renewal Permit
Off-Permit App No. 28461	8/8/2022	Installation of three new 53-gallon propionaldehyde (PA) process tanks (TPR1, TPR2, and TPR3) are proposed to be installed at the Flocryl Acrylamide Plant to reduce the amount of catalyst used in acrylamide production. In addition, installation of one new reactor (WSR3) is proposed to be installed at the Chemtall Mannich Plant. WSR3 will produce wet strength resin and polymer products.
Off-Permit App No. 28517	9/6/2022	Installation of cryogenic condenser recovery units (cryogenic units) at the Flocryl Acrylates Batch (North), Continuous (South), and Continuous (AD6) Plants. A cryogenic unit will be installed directly upstream of each existing thermal oxidizer associated with the plants (Source Codes TO01, CT01, and CT02). The cryogenic units will be used for the recovery of raw materials, which will be recycled back to the process.

B. Regulatory Status

1. PSD/NSR/RACT

The facility is classified as one of the 28 named listed source categories under 40 CFR 52.21 which means the PSD/NSR major source threshold for *regulated NSR pollutants* is 100 tons per year. SNF is classified as an existing major Title I site for volatile organic compounds (VOC), nitrogen oxides (NOx), and carbon monoxide (CO).

SNF operates with the following PSD Avoidance limits:

Table 2: PSD Avoidance Limits

Plant	Condition No.	Pollutant	Limit
CHEMTALL/FLOCRYL CHLOROMETHYLATION PLANT	3.2.1	VOC	The Permittee shall not discharge or cause the discharge into the atmosphere from Chloromethylation Lines 1 through 3 and 6 through 8 (Source Codes CM1 through CM3 and CM6 through CM8), emissions of VOC in an amount exceeding 41.5 tons during any consecutive 12-month period. The emissions limit includes fugitive process emissions.
	3.2.10	VOC	The Permittee shall not produce more than 262,800 tons of IPA-dispersants in Liquids Product Lines 1 through 10 (Source Codes LQ01 through LQ10) during any consecutive 12-month period.
	3.2.11	SO_2	The Permittee shall not discharge into the atmosphere from Liquids Product Lines 1 through 10 (Source Codes LQ01 through LQ10) emissions of sulfur dioxide in amount equal to or exceeding 40 tons during any consecutive 12-month period.
	3.2.13	VOC	The Permittee shall not produce IPA-dispersants in Liquids Product Line 11 or 12 (Source Codes LQ11 and LQ12).
	3.2.15	VOC	The Permittee shall not produce IPA-dispersants in Liquids Product Line 13 (Source Code LQ13).

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	Y			✓
PM_{10}	Y			✓
$PM_{2.5}$	Y			✓
SO_2	Y			✓
VOC	Y	✓		
NO_x	Y	✓		
CO	Y	✓		
TRS	N			
H_2S	N			
Individual HAP	Y	✓		
Total HAPs	Y	✓		

II. Proposed Modification

A. Description of Modification

SNF proposes to install and operate a catalyst recovery unit and associated storage tanks for the Flocryl Acrylates Batch (North) and Continuous (South and AD6) Plants at the SNF facility in Riceboro, Georgia. In addition, SNF is requesting to modify the minimum allowable methanol percentage in the composition of the alcohol co-product permitted to be used as fuel in Boilers B203, B204, and B205.

B. Emissions Change

Emissions estimates are as presented in Application Number 668911. For detailed emissions estimates, see Attachment 3 of Application Number 668911.

Table 3: Emissions Change Due to Modification

Pollutant	Is the Pollutant Emitted?	Net Actual Emissions Increase (Decrease) (tpy)	Net Potential Emissions Increase (Decrease) (tpy)
PM	Y	--	--
PM_{10}	Y	--	--
$PM_{2.5}$	Y	--	--
SO_2	Y	--	--
VOC	Y	+5.60	+5.60
NO_x	Y	--	--
CO	Y	--	--
TRS	N	--	--
H_2S	N	--	--
Individual HAP (hexane)	Y	+4.97	+4.97
Total HAPs	Y	+4.97	+4.97

C. PSD/NSR Applicability

The proposed modification does not constitute a major modification under 40 CFR 52.21.

III. Facility Wide Requirements

A. Emission and Operating Caps

No facility-wide emission and/or operating caps were added, removed, or modified as a result of the proposed modification.

B. Applicable Rules and Regulations

- Rules and Regulations Assessment – No facility-wide rules and/or regulations assessment were added, removed, or modified as a result of the proposed modification.

- Emission and Operating Standards – No facility-wide emission and/or operating standards were added, removed, or modified as a result of the proposed modification.

C. Compliance Status

Application Number 668911 does not indicate facility-wide compliance status.

D. Permit Conditions

No permit conditions in Section 2.0 of the permit were added, removed, or modified as a result of the proposed modification.

IV. Regulated Equipment Requirements

A. Brief Process Description

SNF proposes to install and operate a catalyst recovery unit and associated storage tanks for the Flocryl Acrylates Batch (North) and Continuous (South and AD6) Plants at the SNF facility in Riceboro, Georgia. In addition, SNF is requesting to modify the minimum allowable methanol percentage in the composition of the alcohol co-product permitted to be used as fuel in Boilers B203, B204, and B205.

Project Description – Acrylates Catalyst Recovery Process

According to Application Number 668911, a continuous catalyst recovery process (CATR) is proposed to be installed to recover catalyst from the residue produced in the Flocryl Acrylates Batch and Continuous Plants. The process equipment, which includes mixing tanks, settling tanks, surge control vessels, and distillation equipment, will be vented to existing Thermal Oxidizer CT01 and/or CT02. The recovered catalyst will be reused in the Acrylates Batch and Continuous processes.

Hexane, which will be used as the extraction solvent in the catalyst recovery process, will be transferred from existing Hexane Tank T020 or T204. Bottoms residue from the catalyst recovery process will be transferred to new aqueous residue Storage Tank TCT6 or new Residue Storage Tank TCT7 prior to being sent offsite for treatment and/or disposal. These new storage tanks will vent to CT01 and/or CT02.

Project Description – Acrylates Alcohol Co-Product Composition

According to Application Number 668911, the alcohol co-product from the Flocryl Acrylates Batch and Continuous Plants producing ADAM that can be used as fuel in Boilers B203, B204, and B205 is currently permitted with a minimum methanol purity of 94 percent. Since the alcohol co-product content can fluctuate based on varying production rates and process conditions in each plant, the facility requests to change the minimum methanol purity to 90 percent to account for possible variations in the methanol content. The typical methanol concentration will still be 94 percent. The less concentrated alcohol co-product will still be able to be sold to offsite customers.

B. Equipment List for the Process

3.1.1 Additional Emission Units

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	**Description**		**ID No.**	**Description**
FLOCRYL ACRYLATES CONTINUOUS PLANT				
Other – (South and AD6)				
CATR	Catalyst Recovery Process	40 CFR 63 Subpart FFFF[1]	CT01 CT02	Thermal Oxidizer
TCT6	Aqueous Residue Storage Tank	40 CFR 63 Subpart FFFF[1]	CT01 CT02	Thermal Oxidizer
TCT7	Residue Storage Tank			

* 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.
[1]Group 1 source.

C. Equipment & Rule Applicability

The rule applicability of NSPS and NESHAPs for the new catalyst recovery equipment only will be discussed below.

- Applicable Rules and Regulations -

40 CFR 60, Subpart Kb - New Source Performance Standard Standards (NSPS) of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984
Storage tanks with a capacity between 19,813 and 39,891 gallons and containing volatile organic liquids with a vapor pressure greater than or equal to 15.0 kPa (2.18 psia) or storage tanks with a capacity greater than 39,891 gallons and containing volatile organic liquids with a vapor pressure greater than or equal to 3.5 kPa (0.51 psia) that were constructed or modified after June 23, 1984 are subject to this standard. Pressure vessels operated above 204.9 kPa (29.7 psia) and process tanks, including surge control vessels and bottoms receivers, are not subject to this standard. The applicability of this standard to the proposed new storage tanks is as follows:

- The capacity of both aqueous residue storage tank TCT6 and residue storage tank TCT7 will be greater than 19,813 gallons and less than 39,981 gallons. Since the maximum vapor pressure of the material in the tanks will be less than 2.18 psia, the tanks will not be subject to the standard.

40 CFR 60 Subpart VVa - NSPS for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI) for which Construction, Reconstruction, or Modification Commenced After November 7, 2006
According to Application Number 668911, the catalyst recovery process will be associated with the Flocryl Acrylates Batch and Continuous plants, which are SOCMI facilities since they manufacture one or more of the chemicals specifically listed in 40 CFR 60.489 (i.e., methanol). The Batch and Continuous (South) plants are subject to 40 CFR 60 Subpart VV and the Continuous (AD6) plant is subject to 40 CFR 60 Subpart VVa since it was constructed after November 7, 2006. The catalyst recovery process will be constructed after November 7, 2006; therefore, the process will be assumed to be subject to Subpart VVa. Since the catalyst recovery process will also be subject to the Miscellaneous Organic Chemical Manufacturing: National Emission Standards for Hazardous Air Pollutants (NESHAP) per 40 CFR 63.2535(k), a source can elect to comply with only the MON Rule LDAR requirements. SNF is electing to comply with the MON Rule LDAR requirements in cases where there is overlap with the NSPS Subpart VVa requirements. Components in HAP service will also be subject to the MON Rule LDAR requirements.

40 CFR 63, Subpart FFFF – Miscellaneous Organic NESHAP (MON) Rule
According to Application Number 668911, the catalyst recovery process is associated with both existing (Batch and AD6) and new (South) MON Rule sources. SNF is electing to classify the catalyst recovery process as a new source since the requirements for new sources are more stringent than for existing sources. The MON Rule applicability determinations and compliance methods for the catalyst recovery process and new storage tanks are as follows:

- Catalyst recovery process vents – The catalyst recovery process vents will be designated as MON Rule Group 1 continuous process vents and will vent to a thermal oxidizer (CT01 and/or CT02) to comply with the MON Rule emission control requirements in MON Rule Table 1.

- Catalyst recovery surge control vessels – Per §63.2450(r), surge control vessels must meet the emission limitations in MON Rule Table 4 for Group 1 storage tanks if the surge control vessels meet the capacity and vapor pressure thresholds for Group 1 storage tanks. Although catalyst recovery surge control vessels that will be permitted as part of the catalyst recovery process may or may not meet the capacity and vapor pressure thresholds for Group 1 storage tanks, they will be vented to a thermal oxidizer (CT01 and/or CT02).

- Residue storage tanks - Per §63.2550, Group 1 storage tanks have a minimum capacity of 10,000 gallons and a maximum true vapor pressure of total HAP of at least 0.69 kPa for new sources.

  Aqueous residue storage tank TCT6 and residue storage tank TCT7 will each have a capacity greater than 10,000 gallons and the maximum true vapor pressure of total HAP may be greater than 0.69 kPa; therefore, these tanks will be classified as MON Rule Group 1 storage tanks. The tanks will vent to a thermal oxidizer (CT01 and/or CT02) to comply with the MON Rule emission control requirements in MON Rule Table 4.

- Equipment Leaks - Leak detection and repair (LDAR) requirements will be addressed by following the MON Rule requirements. To comply with the MON Rule, SNF has elected to comply with 40 CFR 63 Subpart UU for equipment in organic HAP service. To comply with 40 CFR 60 Subpart VVa, the AD6 Plant will also comply with Subpart UU for equipment in regulated service, as allowed by the MON Rule per 40 CFR 63.2535(k). For equipment associated with tanks TCT6 and TCT7 that is complying with Subpart UU and is also subject to 40 CFR 265 Subpart BB, as allowed per §63.2535(b)(2), SNF will comply with the requirements of Subpart UU, since they are more stringent.

According to Application Number 668911, a MON Rule Notification of Compliance Status (NCS) report for the Acrylates South plant was submitted in April 2012. A MON Rule Precompliance report for the Acrylates AD6 plant was included as part of the air permit modification application submitted in October 2020. There are no regulatory applicability changes to the information submitted in the NCS or Precompliance reports as a result of the proposed modifications in this application. Therefore, notification of a change to the NCS report and a revised Precompliance report are not required. A NCS report will be submitted following required performance testing on CT01 and/or CT02.

Georgia Air Toxics Guidelines Assessment

According to the State's *Guideline for Ambient Impact Assessment of Toxic Air Pollutant (TAP)Emissions (Revised March 2017),* existing facilities that require a State Implementation Plan (SIP) permit that are either adding new equipment or modifying existing equipment that results in an increase in the emission of specified toxic air pollutants must demonstrate compliance with the Allowable Ambient Concentration (AAC) for each air toxic. If the facility-wide annual emission rate of a given toxic air pollutant (TAP) is less than the Minimum Emission Rate (MER) no further analysis is required. However, if the facility-wide emission rate exceeds the MER, the facility must show that the resulting maximum ground- level concentration (MGLC) determined by air dispersion analysis does not exceed the ACC of the TAP in question.

According to Application Number 668911, hexane is the only air toxic constituent that will increase as a result of this modification. A comparison of total sitewide hexane emissions for when hexane emissions were last modeled compared to total sitewide requested permitted hexane emissions after completion of the modifications proposed in this application is provided in Table 3 of the narrative associated with Application Number 668911.

According to Application Number 668911, proposed hexane emissions will remain significantly less than what was previously modeled. Therefore, air dispersion modeling was not completed.

D. Permit Conditions

Table 3.1.1 will be added as provided above to add the applicable proposed equipment.

Permit Condition 3.3.83 defines the fuels that can be combusted in boiler Equipment Group BLRS5. Permit Condition 3.3.83.b is being modified by replacing “94%” with “90%”.

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

The facility must conduct performance testing for the proposed new AD6 Plant Thermal Oxidizer to demonstrate compliance with 40 CFR 63 Subpart SS and 40 CFR 63 Subpart FFFF as specified in existing Permit Condition 4.2.1. This condition will be modified to add the proposed Flocryl Acrylates Catalyst Recovery Process (CATR) as a result of this permit amendment.

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

Existing Permit Condition 5.2.10 requires the facility to sample the alcohol co-product that is burned Equipment Group BLRS5 to verify that it is at the specified purity and free of hazardous air pollutants. This condition will be modified by replacing "94%" with "90%".

VII. Other Record Keeping and Reporting Requirements

Existing Permit Condition 6.1.7.b.xii. specifies an exceedance regarding the purity of the alcohol co-product to be combusted in new boiler Equipment Group BLRS5. This condition will be modified by replacing "94%" with "90%".

Permit Condition 6.2.63, added as part of this modification to provide written notification of the startup of the Catalyst Recovery Process (CATR).

VIII. Specific Requirements

A. Operational Flexibility

This modification does not specify operational flexibility for this facility.

B. Alternative Requirements

This modification does not specify alternative requirements for this facility.

C. Insignificant Activities

This modification does not add, remove or modify any insignificant activities.

D. Temporary Sources

This modification does not specify temporary sources for this facility.

E. Short-Term Activities

This modification does not specify short-term activities for this facility.

F. Compliance Schedule/Progress Reports

Application Number 668911 does not specify compliance schedule/process reports for this facility.

G. Emissions Trading

This modification does not specify emissions trading for this facility.

H. Acid Rain Requirements/CAIR/CSPAR

This modification does not change applicability of Acid Rain Requirements/CAIR/CSPAR for this facility.

I. Prevention of Accidental Releases

This modification does not change applicability of prevention of accidental releases for this facility.

J. Stratospheric Ozone Protection Requirements

This modification does not change applicability of stratospheric ozone protection requirements for this facility.

K. Pollution Prevention

This modification does not change applicability of pollution prevention for this facility.

L. Specific Conditions

This modification does not add specific conditions for this facility.

Addendum to Narrative

The 45-day EPA review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//