Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

SHINTECH LOUISIANA, LLC
Plaquemine PVC Plant
26270 Hwy 405, Plaquemine, Iberville Parish, Louisiana
Agency Interest Number: 126578
Activity Number: PER20070007
Proposed Permit Number: 3063-V0

I. APPLICANT

Company:
SHINTECH LOUISIANA, LLC - Plaquemine PVC Plant
PO Box 358
Addis, Louisiana 70710-0358

Facility:
Shintech Louisiana, LLC
26270 Hwy 405, Plaquemine
Iberville Parish, Louisiana

Latitude of Facility Front Gate: 30 Deg 16 Min 23 Sec
Longitude of Facility Front Gate: 91 Deg 10 Min 24 Sec

II. FACILITY AND CURRENT PERMIT STATUS

Shintech Louisiana, LLC (Shintech), a wholly owned subsidiary of C-K Tech, Inc., is currently constructing Shintech Plaquemine Plant (SPP) on the west bank of the Mississippi River near Plaquemine, Louisiana in Iberville Parish. The current construction includes the following units:

- Utilities
- Chlor-Alkali (C/A) Unit
- Vinyl Chloride (VCM) Unit
- Polyvinyl Chloride (PVC) Unit

SPP is authorized under Title V Permit No. 1280-00118-Vo and PSD Permit No. PSD-LA-709 issued on July 27, 2005.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Shintech proposes a new project to construct and operate Shintech Plaquemine Plant 2 (SPP-2) at the same site.

Shintech Louisiana, LLC – Plaquemine PVC Plant is a designated Part 70 source. One Part 70 permit has been issued to the operating units within the complex. These include:

Permit No.	Unit or Source	Date Issued
1280-00118-V0	Shintech Plaquemine Plant 1	3/21/2006
PSD-LA-709	Shintech Plaquemine Plant 1	3/20/2006

III. PROPOSED PROJECT/PERMIT INFORMATION

Application

A permit application was submitted on November 14, 2007 requesting a Part 70 operating permit for the Shintech Plaquemine Plant 2.

Project

Shintech Louisiana, LLC (Shintech), a wholly owned subsidiary of C-K Tech, Inc., is currently constructing Shintech Plaquemine Plant (SPP) on the west bank of the Mississippi River near Plaquemine, Louisiana in Iberville Parish. The current construction includes the following units:

- Utilities
- Chlor-Alkali (C/A) Unit
- Vinyl Chloride (VCM) Unit
- Polyvinyl Chloride (PVC) Unit

SPP is authorized under Title V Permit No. 1280-00118-Vo and PSD Permit No. PSD-LA-709 issued on July 27, 2005.

Shintech proposes a new project to construct and operate Shintech Plaquemine Plant 2 (SPP-2) at the same site.

Proposed Permit

Permit 3063-V0 will be the initial Part 70 operating permit and Permit PSD-LA-731 will be an initial PSD permit for the Shintech Plaquemine Plant 2.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Permitted Air Emissions

Estimated emissions in tons per year are as follows:

Pollutant	Emissions
PM_{10}	27.74
SO_2	2.72
NO_X	44.15
CO	179.45
VOC	32.40

IV REGULATORY ANALYSIS

The applicability of the appropriate regulations is straightforward and provided in the Specific Requirements section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are also provided in the Specific Requirements section of the proposed permit.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
UNF001 – Entire Facility	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	40 CFR 63 Subpart IIIII – National Emission Standards for Hazardous Air Pollutants: Mercury Cell Chlor-Alkali Plants (40CFR 63.8182(a))	DOES NOT APPLY – Facility is not a mercury cell chlor-alkali plant
EQT0112 & EQT0113 – 2U-1,2: Boilers A & B	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Control of Nitrogen Oxides (LAC 33:III.2201.C.15)	EXEMPT – Proposed State-Only limit is more stringent than the NOx emission limit for industrial boilers
FUG0006 – 2U-4: Fugitive Emissions (Bio)	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153)	DOES NOT APPLY – Biological treatment system does not receive any wastewaters meeting the definition of Affected VOC Wastewater Stream as defined in LAC 33:III.2153.A.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61.65(b)(9))	DOES NOT APPLY – Biological wastewater treatment system does not receive any untreated in process wastewater from a unit subject to the Vinyl NESHAP.
	NESHAP Subpart FF – National Emission Standard for Benzene Waste operations (40 CFR 61.340))	DOES NOT APPLY – Compliance with SOCMI HON Group 1 and Group 2 wastewater requirements supersedes NESHAP Subpart FF requirements.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
FUG0006 – 2U-4: Fugitive Emissions (Bio) (Continued)	40 CFR 63 Subpart F – National Emission Standards for Hazardous Air Pollutants from the SOCMI (HON) (40 CFR 63.100)	DOES NOT APPLY – Biological treatment system does not receive any Group 1 and/or Group 2 wastewater streams from a HON regulated unit.
	40 CFR 63 Subpart G – National Emission Standards for Hazardous Air Pollutants from the SOCMI for Process Vents, Storage Vessels, Transfer Operations and Wastewater (HON) (40 CFR 63.110)	DOES NOT APPLY – Biological treatment system does not receive and Group 1 and/or Group 2 wastewater streams from a HON regulated unit.
EQT0115 & EQT0116 – 2U-5 & 2U-6: Ship Dock Emergency, Utility Emergency Generator (Bio)	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C)	EXEMPT – Emergency stationary internal combustion engines
EQT0117 - 2C-1: No.2 Chlorine Scrubber	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Vent Stream is not in VOC service.
	NSPS Subpart NNN – SOCMI Distillation Operations (40 CFR 60.660)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
EQT0117 - 2C-1: No.2 Chlorine Scrubber (Continued)	NSPS Subpart RRR – SOCMI Reactor Operations (40 CFR 60.700)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.
EQT0118 - 2C-2: HCl Scrubber	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Vent Stream is not in VOC service.
	NSPS Subpart NNN – SOCMI Distillation Operations (40 CFR 60.660)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.
	NSPS Subpart RRR – SOCMI Reactor Operations (40 CFR 60.700)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.
EQT0120 - 2C-4: C/A Cooling Tower	40 CFR 63 Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers (40 CFR 63.400)	DOES NOT APPLY – The facility does not use chromium based water treatment chemicals in its cooling waters.
FUG0007 - 2C-5: C/A Fugitive Emissions	Fugitive Emission Control (LAC 33:III.2121)	DOES NOT APPLY – The C/A Unit is not a SOCMI facility or any other listed facility per LAC 33:III2121.A
EQT0121 - 2C-6 C/A Emergency Generators	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
EQT0121 - 2C-6 C/A Emergency Generators (cont.)	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C)	EXEMPT – Emergency stationary internal combustion engines
EQT0122, EQT0123, EQT0124, & EQT0125 – 2M-1,2,3,4: Cracking Furnaces A, B, C, and D (Combustion only)	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C.15)	EXEMPT – Proposed State-Only limit is more stringent than the NOx emission limit for industrial boilers
	NSPS Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR 60.40c)	DOES NOT APPLY – Units do not meet the definition of a "Steam Generating Unit" as defined in Subpart Dc.
EQT0126 & EQT0127 – 2M-5,6: Thermal Oxidizer A & B	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Control of Nitrogen Oxides (LAC 33:III.2201.C.15)	EXEMPT – Thermal Oxidizers are exempt per LAC 33:III.2201.C.7

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
EQT0128 – 2M-7: VCM Cooling Tower	40 CFR 63 Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers (40 CFR 63.400)	DOES NOT APPLY – The facility does not use chromium based water treatment chemicals in its cooling waters.
FUG0008 - 2M-8: VCM Unit Fugitive Emissions	Fugitive Emission Control for Ozone Nonattainment Areas and Specified Parishes (LAC 33:2122)	EXEMPT – Any facility which has in place a fugitive emissions monitoring program which controls to a higher degree than required by this regulation upon submittal of a description of the program to the administrative authority per LAC 33:III.2122.D.5
	NSPS Subpart VV – Equipment Leaks of VOC in the SOCMI Industry (40 CFR 60.480)	DOES NOT APPLY – Compliance with this Subpart is achieved by complying with 40 CFR 63, Subpart H per 40 CFR 63.160(b)(1)
	NESHAP Subpart V – National Emission Standard for Equipment Leaks (40 CFR 61.240)	DOES NOT APPLY – Compliance with this Subpart is achieved by complying with 40 CFR 63, Subpart H per 40 CFR 63.160(b)(2)
EQT0129 - 2M-11: VCM Emergency Generators	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C)	EXEMPT – Emergency stationary internal combustion engines

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
RLP0010, 11, 12, & 13 – 2MCL-301, 302, 303, & 304: Cracking Furnace Initial Quench Process Vents	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NSPS Subpart RRR – SOCMI Reactor Operations (40 CFR 60.700)	EXEMPT – Facility meets the requirements specified in 60.700(c)(5) and 60.705(r).
RLP0014, 15, &16 – 2MRE-203,204&205: OHC Reactor Initial Quench Process vents; RLP00XX & XX – 2MCL-204,205: OCH Train CO2 Stripper Process Vents	Limiting VOC Emissions from SOCMI reactor Processes and Distillation Operations (LAC 33.III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
RLP0017,18,XX – 2MRE-101, 102, 103: DC Reactor Process Vents	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61)	EXEMPT – NESHAP Subpart F does not apply to direct chlorination (DC) reactor processes
RLP0019 – 2MTK-105: DC Product Separator Vent	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61)	EXEMPT – NESHAP Subpart F does not apply to direct chlorination (DC) reactor processes
RLP00XX, XX-2MCL-221,222: Process Wastewater Stripper vents	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage component, handling , transfer, or treatment facility subject to the HON is exempt from the provisions of this section

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
RLP0026, 27, 28, 29, & 30 – 2MCL-401, 402, 403, 404, & 405: EDC Purification Columns vents	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NSPS Subpart NNN – SOCMI Distillation Operations (40 CFR 61.62(a))	Exemption applies for NSPS testing, monitoring, recordkeeping, and reporting under HON overlap provisions at 60.110(d)(6)
EQT0162 – 2VCLD-RC: VCM Railcar Loading Racks	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63.100(f))	DOES NOT APPLY – Loading racks, loading arms, or loading losses that vapor balance during all loadingoperations are not subject to the requirements of Subparts A, F, G, and H
EQT0163 – 2VCLD-SD: VCM Marine Loading Racks	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63.100(f))	DOES NOT APPLY – 40 CFR 63 Subparts F and G do not apply to marine loading operations.
	40 CFR 63 Subpart Y – National Emission Standard for Marine Tank Vessel Loading Operations (40 CFR 63.560)	EXEMPT – The provisions pertaining to the MACT standards in 63.562(b) do not apply to marine tank vessel loading operations where emissions are reduced by using vapor balancing systems.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
EQT0164 – 2EDLD-SD: EDC Marine Loading Racks	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61.65(b)(1) and (b)(2))	DOES NOT APPLY – Requirement is to reduce the quantity of the VCM in all parts of each loading line that are to opened to atmosphere to ≤0.13 scf. VCM removed from loading lines is to be controlled to ≤10 ppmv (3-hr average)
	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63.100(f))	DOES NOT APPLY – 40 CFR 63 Subparts F and G do not apply to marine loading operations.
	40 CFR 63 Subpart Y – National Emission Standard for Marine Tank Vessel Loading Operations (40 CFR 63.560)	EXEMPT – The provisions pertaining to the MACT standards in 63.562(b) do not apply to marine tank vessel loading operations where emissions are reduced by using vapor balancing systems.
EQT0134, 135, 136, 137, 138 – 2MTK-491, 492, 493, 494, 495: EDC Intermediate Storage tanks	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
EQT0139 – 2MTK-496: By-Product Storage Tank	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0140, 141 – 2MTK-499 A & B: By-Product Tanks 1 & 2	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT01XX – 2MTK-501: Feed Tank	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0142, 143 – 2MTK-719 A & B: Wastewater Tanks 1 & 2	Storage of VOC Compounds (LAC 33:III.2103)	DOES NOT APPLY – Tanks store material having a maximum true vapor pressure< 1.5 psia
	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0146, 147 – 2MDCW-1, 2: DC Wastewater Streams	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage, handling, transfer, or treatment facility subject to the HON is exempt from the provisions of this section.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61.65(b)(9)(i) & (ii))	EXEMPT – NESHAP Subpart F does not apply to direct chlorination (DC) reactor processes
EQT0148, 149, 150, & 151 – 2MOHCW-1,2,3,4: OHC Wastewater Streams	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage, handling, transfer, or treatment facility subject to the HON is exempt from the provisions of this section.
EQT0152 – 2MEP-1: EDC Purification Wastewater Stream	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage, handling, transfer, or treatment facility subject to the HON is exempt from the provisions of this section.
EQT0157, 158 – 2MGTO-1,2: Thermal Oxidizer A & B and Scrubber Bottoms Waste water streams	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.A)	DOES NOT APPLY – Wastewater does not meet the definition of Affected VOC Wastewater.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40CFR 61.65(b)(9)(i) & (ii))	Does Not Apply – Wastewater streams are < 5 ppmw VOHAP.

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Applicability and Exemptions of Selected Subject Items

ID No:	Requirement	Notes
EQT0157, 158 – 2MGTO-1,2: Thermal Oxidizer A & B and Scrubber Bottoms Waste water streams (continued)	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63. 101)	DOES NOT APPLY – Wastewater stream does not meet the definition of Wastewater in Subpart F
	40 CFR 63 Subpart G – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI for Process Vents, Storage Vessels, Transfer Operations, and Wastewater (40 CFR 63.138(b)(2), 63.139(c)(2), 63.138(d), 63.139(c))	DOES NOT APPLY - Wastewater stream does not meet the definition of Wastewater in Subpart F

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Prevention of Significant Deterioration/Nonattainment Review

Particulate matter (PM_{10}), nitrogen oxide (NO_X), and carbon monoxide (CO) emissions from the proposed facility will be above PSD significance levels. Therefore, the requested permit was reviewed in accordance with PSD regulations for PM_{10}, NO_X, and CO emissions. Emissions of LAC 33:III.Chapter 51-regulated toxic air pollutants (TAP) have been reviewed pursuant to the requirements of the Louisiana Air Quality Regulations.

PM_{10}, NO_X, and CO emissions are above PSD significance levels and must undergo PSD analyses. The selection of control technology was based on the BACT analysis using a "top down" approach and included consideration of control of toxic materials.

Control of PM_{10} and CO emissions were analyzed using a "top down" approach. Good design and maintenance, good combustion practices, and burning gaseous fuels were determined as BACT for PM_{10} and CO emissions from affected equipment at the proposed plant.

Shintech will utilize good combustion practices, low NO_X burners (LNB), flue gas recirculation (FGR), and selective catalytic reduction (SCR) to control NO_X emissions to a degree equivalent to the Lowest Achievable Emission Rates (LAER) to fulfill BACT requirements of the PSD program.

Streamlined Equipment Leak Monitoring Program

Permittee shall comply with a streamlined equipment leaks monitoring program. Compliance with the streamlined program in accordance with this specific condition shall serve to comply with each of the fugitive emission monitoring programs being streamlined, as indicated in the following table. Noncompliance with the streamlined program in accordance with this specific condition may subject the permittee to enforcement action for one of the applicable fugitive emissions programs.

a. Streamlined program shall be applicable to the combined universe of components subject to any of the programs being streamlined. Any component type which does not require periodic monitoring under the overall most stringent program shall be monitored as required by the most stringent program being streamlined and will not be exempted. The streamlined program will include any exemptions based on size or component available in any of the programs being streamlined.

b. Leak definitions and monitoring frequency shall be used based on the overall most stringent program. Percent leaker performance shall be calculated using the provisions of the overall most stringent program. Annual monitoring shall be defined as once every four quarters. Some allowance may be made in the first year on the streamlined program in order to allow for transition from existing monitoring schedules.

c. Permittee shall comply with recordkeeping and reporting requirements of the overall most stringent program. Semiannual reports shall be submitted on September 30 and March 31, to cover the periods from January 1 through June 30

and July 1 through December 31, respectively. The semiannual reports shall include any monitoring performed within the reporting period.

d. The streamlined program shall not be used to replace the continuous monitoring requirements of 40 CFR 61.65(b)(8)(i).

Unit or Plant Site	Programs Streamlined	Stream Applicability	Overall Most Stringent Program
EDC/VCM Unit	40 CFR 63 Subpart H	5% VOHAP	40 CFR 63 Subpart H
	LAC 33:III.2122	10% VOC	
	LAC 33:III.5109	TAP	

MACT Requirements

Emissions of toxic air pollutants (TAPs) from the complex are controlled using MACT, which includes a leak detection and repair (LDAR) program for fugitive components, flares, thermal oxidizers, and boilers.

Air Quality Analysis

Dispersion Model(s) Used: AERMOD$

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
PM_{10}	24-Hour	3.72	150
PM_{10}	Annual	0.63	50
NO_X	Annual	0.75	100
CO	1-hour	226.95	40,000
CO	8-hour	105.01	10,000
Ethylene dichloride	Annual	1.31	3.85
Vinyl chloride	Annual	1.06	1.19
Chlorine	8-hour	19.05	35.7

The toxics air quality dispersion modeling analysis was conducted in accordance with the approved air quality dispersion modeling protocol. For all TAPs other than vinyl chloride, the modeling results show that there were no ambient air impacts greater than ambient air standard (AAS), demonstrating compliance with LAC 33:III.5109.B. Vinyl chloride modeling results show that there were nine receptors with ambient air impacts greater than the AAS. The receptors are located along Evergreen Road and at a restricted public access cemetery located off Evergreen Road to the East of the Georgia Gulf Facility.

The vinyl chloride AAS is based on an annual average. Since the receptor locations are in areas that are uninhabited and restricted access, long-term exposure to vinyl chloride is not expected. Additionally, modeling results show that the Shintech facility's contributions to the vinyl chloride inpacts are relatively minor. A neighboring facility's vinyl chloride contributions to the nine receptors make up a significant portion of the predicted concentrations.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to the Section VIII – General Condition XVII Activities of the proposed permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to the Section IX – Insignificant Activities of the proposed permit.

V. PERMIT SHIELD

The facility did not request a permit shield.

VI. GLOSSARY

Carbon Monoxide (CO) – A colorless, odorless gas, which is an oxide of carbon.

Maximum Achievable Control Technology (MACT) – The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Hydrogen Disulfide (H_2S) – A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the reaction of acids on metallic sulfides, and is an important chemical reagent.

New Source Review (NSR) – A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Nitrogen Oxides (NO_X) – Compounds whose molecules consist of nitrogen and oxygen.

Organic Compound – Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit – Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥10 tons per year of any toxic air pollutant; ≥25 tons of total toxic air pollutants; and ≥100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10} – Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) – The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulfur.

Sulfuric Acid (H_2SO_4) – A highly corrosive, dense oily liquid. It is a regulated toxic air pollutant under LAC 33:III.Chapter 51.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) – Any organic compound, which participates in atmospheric photochemical reactions; that is, any organic compound other than those, which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.

AIR PERMIT ROUTING/APPROVAL SLIP-Permits

AI No.	126578	Company	Shintech Louisiana, LLC	Date Received	11/15/2007
Activity No.	PER20070007	Facility	Shintech Plaquemine Plant 2	Permit Type	
CDS No.		Permit No.	3063-V0	Expedited	☒yes ☐no

1. Technical Review	Approved	Date rec'd	Date FW	Comments
Permit Writer ALR		11/20/07	2/1/08	
Air Quality / Modeling	ymm		3/5/08	
Toxics				
PSD/NNSR				
Technical Advisor				
Supervisor				
2. Management Review (if PN req'd)	**Approved**	**Date rec'd**	**Date FW**	**Comments**
Supervisor	[illegible]		03/04/08	
Manager	DVC	3/4/08	3/5/08	
Assistant Secretary (PN)	GN		3/7	DK for pn
3. Response to Comments (if PN req'd)	**Approved**	**Date rec'd**	**Date FW**	**Comments**
Supervisor				
Manager				
Administrator				
Legal (BFD)				
4. Final Approval	**Approved**	**Date rec'd**	**Date FW**	**Comments**
Supervisor				
Manager				
Assistant Secretary				

1. Technical Review					
PN of App needed	☒yes ☐no	Date of PN of App		Newspaper	
Fee paid	☐yes ☐no				
NSPS applies	☐yes ☐no	PSD/NNSR applies	☐yes ☐no	NESHAP applies	☐yes ☐no

2. Post-Technical Review					
Company technical review	☐yes ☐no ☐n/a	E-mail date		Remarks received	☐yes ☐no
Surveillance technical review	☐yes ☐no ☐n/a	E-mail date		Remarks received	☐yes ☐no

3. Public Notice				
Public Notice Required	☐yes ☐no			
Library				
PN newspaper 1/City	*The Advocate*/Baton Rouge		PN Date	
PN newspaper 2/City			PN Date	
Company notification letter sent	Date mailed			
EPA PN notification e-mail sent	Date e-mailed			
OES PN mailout	Date			

4. Final Review					
Public comments received	☐yes ☐no	EPA comments rec'd	☐yes ☐no	Date EPA Resp to Comments mailed	
Company comments received	☐yes ☐no	PN info entered into Permit Sec VI	☐yes ☐no	Date EPA approved permit	
Comments					

BOBBY JINDAL
GOVERNOR

HAROLD LEGGETT, PH.D.
SECRETARY

State of Louisiana

DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

Certified Mail No.

Activity No.: PER20070007
Agency Interest No. 126578

Mr. David V. Wise
Plant Manager
PO Box 358
Addis, LA 70710-0358

RE: Part 70 Operating Permit, Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Shintech Louisiana LLC, Plaquemine, Iberville Parish, Louisiana

Dear Mr. Wise:

This is to inform you that the permit for the above referenced facility has been approved under LAC 33:III.501. The permit is both a state preconstruction and Part 70 Operating Permit. The submittal was approved on the basis of the emissions reported and the approval in no way guarantees the design scheme presented will be capable of controlling the emissions as to the types and quantities stated. A new application must be submitted if the reported emissions are exceeded after operations begin. The synopsis, data sheets and conditions are attached herewith.

It will be considered a violation of the permit if all proposed control measures and/or equipment are not installed and properly operated and maintained as specified in the application.

Operation of this facility is hereby authorized under the terms and conditions of this permit. This authorization shall expire at midnight on the ___ of _____, 2013, unless a timely and complete renewal application has been submitted six months prior to expiration. Terms and conditions of this permit shall remain in effect until such time as the permitting authority takes final action on the application for permit renewal. The permit number and agency interest number cited above should be referenced in future correspondence regarding this facility.

Done this _____ day of _____, 2008.

Permit No.: 3063-V0

Sincerely,

Cheryl Sonnier Nolan
Assistant Secretary
CSN:ALR
c: EPA Region VI

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Background

Shintech Louisiana, LLC (Shintech), a wholly owned subsidiary of C-K Tech, Inc., is currently constructing Shintech Plaquemine Plant (SPP) on the west bank of the Mississippi River near Plaquemine, Louisiana in Iberville Parish. The current construction includes the following units:

- Utilities
- Chlor-Alkali (C/A) Unit
- Vinyl Chloride (VCM) Unit
- Polyvinyl Chloride (PVC) Unit

SPP is authorized under Title V Permit No. 1280-00118-V0 and PSD Permit No. PSD-LA-709 issued on July 27, 2005.

Shintech proposes a new project to construct and operate Shintech Plaquemine Plant 2 (SPP-2) at the same site.

This is the Part 70 operating permit for the facility.

II. Origin

A permit application and Emission Inventory Questionnaire were submitted by Shintech Louisiana LLC on November 14, 2007 requesting a Part 70 operating permit. Additional Information was received on February 12, 2008 and February 27, 2008.

III. Description

Chlor-Alkali Unit

The Chlor-Alkali (C/A Unit) will use an ion exchange membrane process to produce chlorine (Cl_2), Hydrogen (H_2), and sodium hydroxide (NaOH). The ion exchange membrane process does not use mercury or asbestos. The process reaction is an electrolytic reaction that converts salt solution to CL_2 as follows:

$$2NaCl + 2H_2O + \text{electricity} \rightarrow Cl_2 + H_2 + 2NaOH$$

Raw salt brine is brought to the plant through a pipeline and stored in a tank. The brine is crystallized in an evaporator and purified by ion exchanging resin. The purified brine is sent to the electolyzer. Direct electric current is applied. The anode and cathode are separated by a

membrane to prevent the caustic soda from reacting with the chlorine. Cl_2 produced at the anode is cooled and sent to the Vinyl Chloride Monomer (VCM) unit as raw material. H_2 produced at the cathode is dehumidified and sent to other facilities including the boilers. A portion of chlorine and hydrogen gases is converted to hydrochloric acid for internal use. The lean caustic soda produced at the cathode is concentrated in an evaporative process to produce commercial grade caustic soda. Emissions from process equipment are controlled by absorbers.

VCM Unit

Ethylene is brought to the plant through pipeline. Chlorine is supplied by the C/A Unit. Ethylene is combined with Cl_2 in a direct chlorination reactor to form Ethylene Dichloride (EDC) as follows:

$$C_2H_4 + Cl_2 \rightarrow C_2H_4Cl_2$$

Crude EDC is purified and sent to cracking furnaces through storage tanks. The cracking furnaces provide heat to crack EDC yielding VCM and hydrogen chloride (HCl) as follows:

$$C_2H_4Cl_2 \rightarrow C_2H_3Cl + HCl$$

The VCM is purified and sent to storage spheres. EDC that was not cracked is sent back to the EDC purification train. HCl is recovered and used in a second EDC formation process called oxyhydrochlorination. The oxyhydrochlorination reaction is as follows:

$$C_2H_4 + 2HCl + \tfrac{1}{2}O_2 \rightarrow C_2H_4Cl_2 + H_2O$$

Approximately 1.81 billion pounds of VCM product will be produced each year. Product VCM is sent to (1) the Polyvinyl Chloride (PVC) Unit, (2) a tank car loading facility for transport, or (3) a marine loading dock for shipment. Pure EDC can be transported through the marine loading dock by ship.

Emissions from process equipment are controlled by thermal oxidizers and nitrogen oxide (NO_X) Control.

The Gas Thermal Oxidizers are equipped with waste heat recovery boilers.

Supporting Facilities

Supporting Facilities include bulk truck loading and unloading areas, railcar loading and unloading areas, ship dock area, on-site utilities, steam-generating units, and a wastewater treatment facility (WWTF).

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

Clean-burning fuels (natural gas and hydrogen) will be used to fire steam generating units (boilers), which are equipped with the low NOx burners (LNB) and selective catalytic reduction (SCR).

The WWTF consists of a biological treatment system, pH adjustment basin, final basin, and sludge dewatering system.

Estimated emissions in tons per year are as follows:

Pollutant	Emissions
PM_{10}	27.74
SO_2	2.72
NO_X	44.15
CO	179.45
VOC *	32.40

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Emissions
Acetaldehyde	0.007
Benzene	0.009
Chloroprene	0.005
Ethyl Chloride	0.17
Ethylene Dichloride	8.51
Ethylidene Dichloride	0.07
Formaldehyde	0.12
Methanol	0.27
Methyl Chloride	0.005
Toluene	0.004
1,1,2,2-Tetrachloroethane	0.004
1,1,2-Trichloroethane	0.15
Vinyl Chloride	5.34
Vinylidene Chloride	0.02

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Emissions
Total	14.68

Other VOC (TPY): 17.72

Non-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	After
Ammonia	29.14
Carbon Tetrachloride	0.30
Chlorine	11.14
Chloroform	0.20
Chloroprene	0.005
Hydrochloric Acid	8.93
Total	49.72

Estimated actual emission increases due to the project in tons per year are as follows:

Pollutant	Contemporaneous Increase	Project Increase	Net Change	PSD/ NNSR Threshold	NSR Review Required
PM_{10}	-	+ 27.74	+ 27.74	15 / NA	Yes
SO_2	-	+ 2.72	+ 2.72	40 / NA	No
NO_x	-	+ 44.15	+ 44.15	40 / 25	Yes
CO	-	+ 179.45	+ 179.45	100 / NA	Yes
VOC	-	+ 32.40	+ 32.40	NA / 25	Yes

Prevention of Significant Deterioration (PSD) review is required for this project, which results in a significant increase in emissions of a regulated pollutant.

PSD is part of the federal New Source Review (NSR) permitting program for pollutants. SPP and SPP-2 are categorized as one of the 28 sources listed in Section 169 of the Clean Air Act. SPP is a major source under PSD. As a major source, all proposed SPP-2 attainment pollutants emitted in amounts greater than or equal to the PSD significance levels are subject to PSD review. PSD review is required for PM_{10}, NO_x, and CO.

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

The SPP-2 will be located in Iberville parish, which is part of a nonattainment area for ozone. On June 15, 2005, the EPA revoked the 1-hour ozone ambient air quality standards and the Baton Rouge Nonattainment Area was reclassified as marginal for ozone precursors (NOx and VOC) under the new 8-hour ozone standard. However, on October 3, 2007, the EPA issued a memorandum summarizing the implications of a December 22, 2006 U.S. Court of Appeals for the District of Columbia Circuit decision (South Coast v. EPA). In effect, the court's decision restores applicability thresholds and emission offsets held for nonattainment area classifications under the 1-hour ozone standard. EPA stated that it intends to undertake rulemaking to conform to the court's decision.

In anticipation of this rulemaking, Shintech voluntarily requests review of SPP-2 as if the project were subject to NNSR under the severe nonattainment area classification.

On May 27, 2005, LDEQ issued two Emission Reduction Credit (ERC) Certificates to Shintech. One reflected the transfer of 126 tons of VOC credits from BCP Liquidating, LLC (AI 121722), and the other the transfer of 65.5 tons of ozone season NO_X credits and 91.6 tons of non-ozone season NO_X credits from Terra Mississippi Nitrogen, Inc. (AI No. 2245).

On July 27, 2005, LDEQ issued Permit No. 1280-00118-V0 to Shintech. This permit relied on 50.30 tons/yr of ozone season NO_X credits, 70.41 tons/yr of non-ozone season NO_X credits, and 81.07 tons/yr of VOC credits. Shintech still retains 15.20 tons/yr of ozone season NO_X credits, 21.19 tons/yr of non-ozone season NO_X credits, and 44.93 tons/yr of VOC credits.

On August 4, 2006, LDEQ issued another Emission Reduction Credit (ERC) Certificate to Shintech. This certificate reflected the transfer of 65.5 tons of ozone season NO_X credits and 91.6 tons of non-ozone season NO_X credits from Terra Mississippi Nitrogen, Inc. (AI No. 2245). Giving Shintech a balance of credits of 80.70 tons of ozone season NO_X credits and 112.79 tons of non-ozone season NO_X credits.

Shintech will use 57.39 tons/yr of NO_X credits (23.91 tons of ozone season NO_X credits and 33.48 tons of non-ozone season NO_X credits) and 42.12 tons/year of VOC credits as offsets for NO_X and VOC emissions from the proposed plant at a 1.3 to 1 ratio. LAER will also be applied to emissions of NO_X and VOC.

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

IV. Type of Review

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, Nonattainment New Source Review (NNSR) and Prevention of Significant Deterioration (PSD). PSD is required for PM_{10}, NO_X and CO emissions, which will be permitted under PSD-LA-731. New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP) do apply.

This facility is a major source of toxic air pollutants (TAPs) pursuant to LAC 33:III.Chapter 51.

LAER Analyses for NO_X and VOC

Utility Boilers EQT0112 and EQT0113 (EPN 2U-1 and 2U-2)

Shintech proposes to install and operate two boilers that will provide heat and steam for the Chlor-Alkali Unit and VCM Unit. Each boiler will have a maximum heat input rating of 250 MM BTU/hr. Both boilers will fire natural gas. Emissions of both NOx and VOC are expected from the proposed boilers.

NOx formation occurs by three fundamentally different mechanisms. The principal mechanism of NOx formation in natural gas and hydrogen combustion is thermal NOx. The thermal NOx mechanism occurs through the thermal dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2) molecules in the combustion air. Most NOx formed through the thermal NOx mechanism occurs in the high temperature flame zone near the burners. The formation of thermal NOx is affected by three furnace-zone factors: (1) oxygen concentration, (2) peak temperature, and (3) time of exposure at peak temperature. As these three three factors increase NO_X emission levels increase. The emission trends due to changes in these factors are fairly consistent for all types of natural gas/hydrogen fired boilers. Emission levels vary considerably with the type and size of combustor with operating conditions (e.g., combustion air temperature, volumetric heat release rate, load, and excess oxygen level).

The level of VOC emissions is dependent on the efficiency of natural gas combustion. Hydrogen combustion does not result in VOC emissions. VOC emissions are minimized by combustion practices that promote high combustion temperatures, long residence times at those temperatures, and turbulent mixing of fuel and combustion air. Boilers that are poorly designed and/or maintained may have inefficient combustion resulting in higher VOC emission rates. Sometimes, NOx control systems such as low NOx burners (LNB) and flue gas recirculation (FGR) may reduce combustion efficiency. Care must be taken to assure proper combustion when using these control systems.

EPA's RACT/BACT/LAER Clearinghouse (RBLC) was used to perform a search of all nationally permitted control technologies for natural gas and hydrogen fired boilers of similar

size and duty. Based on the RBLC search results, the lowest permitted emission rates nationally are:

- 0.07 lb NOx/MM BTU for Hydrogen Combustion Using LNB, FGR, and Selective Catalytic Reduction (SCR)
- 0.012 lb NOx/MM BTU for Natural Gas Combustion using LNB, FGR, and SCR
- 0.0026 lb VOC/MM BTU for Natural Gas Combustion using Good Combustion Practices and Oxidation Control

Shintech proposes to match or surpass the above emission rates with the following LAER:

- 0.01 lb NOx/MM BTU for Natural Gas/Hydrogen Combustion using LNB and SCR
- 0.0026 lb VOC/MM BTU for Natural Gas Combustion using Good Combustion Practices

Fugitive Emissions FUG0006, FUG0008, FUG0009, and FUG0010 (EPN 2U-4, 2M-8, 2M-9, and 2M-10)

Fugitive emission rates are estimates based on leak frequencies found in case studies. An average leak factor is used to determine what the fugitive emission rate is for an area, a facility, or an entire plant. These leak factors are often grouped by industrial categories.

Fugitive equipment leaks are controlled through Leak Detection and Repair (LDAR) programs. LDAR programs can be differentiated by four key criteria:

- Leak definition
- Monitoring frequency
- Properties of the monitored componds
- Requirements for repair

40 CFR 63 Subpart H is the overall most stringent LDAR program. For VOC equipment leaks, Shintech proposes LAER as conducting an LDAR program as provided in 40 CFR 63 Subpart H.

VCM Cracking Furnaces EQT0122, EQT0123, EQT0124, & EQT0125 (EPN 2M-1, 2M-2, 2M-3, & 2M-4)

Shintech proposes to install and operate four VCM cracking furnaces. Each furnace will have a maximum heat input rating of 90 MM BTU/hr. The furnaces will fire natural gas. Emissions of both NOx and VOC are expected from the proposed furnaces. Post combustion selective catalytic reduction (SCR) will be used to control NOx emissions. SCR is a post-combustion control technology based on the chemical reduction of NOx into molecular nitrogen (N_2) and water vapor (H_2O). A catalyst is used to increase the NOx removal efficiency, which allows the process to occur at lower temperatures.

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

NOx formation occurs by three fundamentally different mechanisms. The principal mechanism of NOx formation in natural gas and hydrogen combustion is thermal NOx. The thermal NOx mechanism occurs through the thermal dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2) in the combustion air. Most NOx formed through the thermal NOx mechanism occurs in the high temperature flame zone near the burners. The formation of thermal NOx is affected by three furnace-zone factors: (1) oxygen concentration, (2) peak temperature, and (3) time of exposure at peak temperature. As these three factors increase, NOx emission levels increase. The emission trends due to changes in these factors are fairly consistent for all types of natural gas fired furnaces. Emission levels vary considerably with the type and size of combustor and with operating conditions (e.g., combustion air temperature, volumetric heat release rate, load, and excess oxygen level).

The level of VOC emissions is dependent on the efficiency of natural gas combustion. VOC emissions are minimized by combustion practices that promote high combustion temperatures, long residence times at those temperatures, and turbulent mixing of fuel and combustion resulting in higher VOC emission rates. Sometimes, NOx control systems such as low NOx burners (LNB) and flue gas recirculation (FGR) can reduce combustion efficiency. Care must be taken to assure proper combustion when using these control systems.

EPA's RBLC was used to perform a search of all nationally permitted control technologies for natural gas and hydrogen fired boilers of similar size and duty. Based on the RBLC search results, the lowest permitted emission rates nationally are:

- 0.009 lb NOx/MM BTU for Natural Gas Combustion using LNB
- 0.005 lb VOC/MM BTU for Natural Gas Combustion using Good Combustion Practices

Shintech proposes to match the above emission rates with the following LAER:

- 0.009 lb NOx/MM BTU for Natural Gas Combustion using LNB and SCR
- 0.005 lb VOC/MM BTU for Natural Gas Combustion using Good Combustion Practices

<u>Gas Thermal Oxidizers EQT0126 and EQT0127 (EPN 2M-5 & 2M-6)</u>

The Gas Thermal Oxidizers are used to dispose of waste gas combustible organic compounds from the process. The method of disposal is to oxidize organic compounds to carbon dioxide and water. When chlorinated organic compounds are part of the waste gas stream, the products of complete combustion include hydrochloric acid (HCl). The HCl will be removed by an HCl scrubber. Thermal oxidation provides safe, effective, and efficient control of almost any organic stream, provided that it is properly designed and maintained.

The heart of the thermal oxidizers is a nozzle-stabilized flame maintained by a combination of auxiliary fuel (natural gas), waste gas, and supplemental air. Upon passing through the

flame, the waste gas is heated from its inlet temperature to its ignition temperature. Any organic stream and air mixture will ignite if its temperature is raised to a sufficiently high level. Therefore, the level of VOC control is determined by the residence time and temperature in the thermal oxidizer combustion chamber.

Pollutants that can be expected from the thermal oxidizers include products of combustion, i.e. PM_{10} and NOx, and products of incomplete combustion, i.e. CO and VOC.

EPA's RBLC was used to perform a search of permitted thermal oxidizers in similar industrial uses. Based on the RBLC search results, the lowest permitted emission rates nationally are:

- 0.025 lb NOx/MM BTU
- 0.058 lb VOC/MM BTU and 99.9% Destruction of VOC

Shintech proposes to match the above emission rates with the following LAER:

- 0.02 lb NOx/MM BTU
- 0.015 lb VOC/MM BTU and 99.99% Destruction of VOC

<u>Diesel-Fired Emergency Engines EQT0115, 0116, 0121, and 0129 (EPN 2U-5, 2U-6, 2C-6, and 2M-11)</u>

Shintech proposes to install and operate diesel-fired engines that will provide emergency services for the Utilities, Chlor-Alkali, and VCM Units. The engines will be operated for short periods each month for maintenance. Emissions of both NO_X and VOC are expected from the proposed engines.

NO_X formation occurs by three fundamentally different mechanisms. The principal mechanism of NO_X formation in diesel combustion is thermal NO_X. The thermal NO_X mechanism occurs through the thermal dissociation and subsequent reaction of nitrogen (N_2) and oxygen (O_2) molecules in the combustion air. Most NO_X formed through the thermal NO_X mechanism occurs in the combustion zone. The formation of thermal NO_X is affected by three factors: (1) oxygen concentration, (2) peak temperature, and (3) time of exposure at peak temperature. As these three factors increase, NO_X emission levels increase. The emission trends due to changes in these factors are fairly consistent for all types of diesel-fired engines. Emission levels vary considerably with the type and size of combustor and with operating conditions (e.g., combustion air temperature, volumetric heat release rate, load, and excess oxygen level).

The level of VOC emissions is dependent on the efficiency of diesel combustion. VOC emissions are minimized by combustion practices that promote high combustion temperatures, long residence times at those temperatures, and good mixing of fuel and

combustion air. Engines that are poorly designed and/or maintained may have inefficient combustion resulting in higher VOC emission rates. Care must be taken to assure proper combustion. Good combustion practices include:

- Maintaining written operating and maintenance procedures;
- Properly trained operating personnel;
- Maintaining appropriate fuel-to-air ratio; and
- Proper design, fuel handling, sizing, and combustion air and fuel distribution.

Shintech proposes the following LAER for the emergency engines with horsepower ratings greater than 600 HP:

- 0.024 lb NO_X / HP-hr
- 0.00071 lb VOC / HP-hr

Shintech proposes the following LAER for the emergency engines with horsepower ratings less than 600 HP:

- 0.031 lb NO_X / HP-hr
- 0.0025 lb VOC / HP-hr

V. Credible Evidence

Notwithstanding any other provisions of any applicable rule or regulation or requirement of this permit that state specific methods that may be used to assess compliance with applicable requirements, pursuant to 40 CFR Part 70 and EPA's Credible Evidence Rule, 62 Fed. Reg. 8314 (Feb. 24, 1997), any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed shall be considered for purposes of Title V compliance certifications. Furthermore, for purposes of establishing whether or not a person has violated or is in violation of any emissions limitation or standard or permit condition, nothing in this permit shall preclude the use, including the exclusive use, by any person of any such credible evidence or information.

VI. Public Notice

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, on **<date>**, 200X; and in the <local paper>, <local town>, on **<date>**, 200X. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental

Services Public Notice Mailing List on **<date>**. The draft permit was also submitted to US EPA Region VI on **<date>**. All comments will be considered prior to the final permit decision.

VII. Effects on Ambient Air

Dispersion Model(s) Used: AERMOD (Criteria Pollutants) and ISC3 (TAPs)

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Toxic Air Pollutant Ambient Air Quality Standard or (National Ambient Air Quality Standard {NAAQS})
PM_{10}	24-Hour	3.72	150
PM_{10}	Annual	0.63	50
NO_X	Annual	0.75	100
CO	1-hour	226.95	40,000
CO	8-hour	105.01	10,000
Ethylene dichloride	Annual	1.31	3.85
Vinyl chloride	Annual	1.56	1.19
Chlorine	8-hour	19.05	35.7

The toxics air quality dispersion modeling analysis was conducted in accordance with the approved air quality dispersion modeling protocol. For all TAPs other than vinyl chloride, the modeling results show that there were no ambient air impacts greater than ambient air standard (AAS), demonstrating compliance with LAC 33:III.5109.B. Vinyl chloride modeling results show that there were nine receptors with ambient air impacts greater than the AAS. The receptors are located along Evergreen Road and at a restricted public access cemetery located off Evergreen Road entirely within the boundaries of the Georgia Gulf Facility.

The vinyl chloride AAS is based on an annual average. Since the receptor locations are in areas that are uninhabited and restricted access, long-term exposure to vinyl chloride is not expected. Additionally, modeling results show that the Shintech facility's contributions to the vinyl chloride inpacts are relatively minor. A neighboring facility's vinyl chloride contributions to the nine receptors make up a significant portion of the predicted concentrations.

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

VIII. General Condition XVII Activities

		Emission Rates - tons					
Work Activity	Schedule	PM_{10}	SO_2	NO_X	CO	VOC	Non-VOC TAP
Equipment Opening at Turnaround	1/Year						<0.001
Equipment Opening at routine operations	4/Year	0.07					<0.001
Sampling	4/Day					0.005	0.001
Instrument Maintenance	2/Year					<0.001	0.020
Inert Gas purging for plant start up	6/Year						0.004
Cracking furnace decoking	2/Year	0.22		0.05	0.83		
Loading/Unloading Operations	5-18/day					0.024	

AIR PERMIT BRIEFING SHEET
AIR PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

IX. Insignificant Activities

ID No.:	Description	Citation
2U-ISA1	Fuel oil tank for EMG river water pump	Insignificant Activity per LAC 33:III.501.B.5.A.3.
2U-ISA2	Fuel oil tank for firefighting water pump – A	LAC 33:III.501.B.5.A.3
2U-ISA3	Fuel oil tank for firefighting water pump – B	LAC 33:III.501.B.5.A.3
2U-ISA4	Fuel oil tank for firefighting water pump – C	LAC 33:III.501.B.5.A.3
2U-ISA5	Fuel oil tank for firefighting water pump – D	LAC 33:III.501.B.5.A.3
2U-ISA6	Fuel oil tank for firefighting water pump – E	LAC 33:III.501.B.5.A.3
2U-ISA7	Fuel oil tank for firefighting water pump – F	LAC 33:III.501.B.5.A.3
2U-ISA8	Fuel oil tank of Emergency generator	LAC 33:III.501.B.5.A.3
2A-ISA3	Fuel oil tank of Emergency generator	LAC 33:III.501.B.5.A.3
2A-ISA4	Sulfuric Acid Tank	LAC 33:III.501.B.5.D
2A-ISA6	Laboratory Vent	LAC 33:III.501.B.5.A.6
2M-ISA1	Fuel oil tank for EMG neutralizer CW pump -A	LAC 33:III.501.B.5.A.3
2M-ISA2	Fuel oil tank for EMG neutralizer CW pump –B	LAC 33:III.501.B.5.A.3
2M-ISA3	Fuel oil tank for EMG neutralizer CW pump –C	LAC 33:III.501.B.5.A.3
2M-ISA4	Fuel oil tank for EMG generator	LAC 33:III.501.B.5.A.3
2M-ISA5	Sulfuric Acid Tank	LAC 33:III.501.B.5.D
2M-ISA6	Hydrochloric Acid Storage Tank	LAC 33:III.501.B.5.D
2M-ISA7	Laboratory Vent	LAC 33:III.501.B.5.A.6
2M-ISA8	Process Stream Analyzers – 1	LAC 33:III.501.B.5.A.6
2M-ISA9	Process Stream Analyzers – 2	LAC 33:III.501.B.5.A.6
2M-ISA10	Ammonia Seal Tank	LAC 33:III.501.B.5.D

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		LAC 33:III.Chapter																		
ID No.:	Description	5▲	9	11	13	15	2103	2107	2108	2113	2115	2121	2122	2147	2153	22	29*	51*	56	59*
UNF0001	Entire Facility		1	1	1	2				1						1	1	1	1	1
EQT0112	2U-1 - Boiler A			1	1	2										2				
EQT0113	2U-2 - Boiler B			1	1	2										2				
EQT0114	2U-3 - 35% HCl Tank Absorber																	1		
FUG0006	2U-4 - Fugitive Emission (Bio)														3			1		
EQT0115	2U-5 - Ship Dock Emergency Pump			1	1	2										2				
EQT0116	2U-6 - Utility Emergency Generator (Bio)			1	1	2										2				
EQT0117	2C-1 - No.2 Chlorine Scrubber										3							1		
EQT0118	2C-2 - HCl Scrubber										3							1		
EQT0119	2C-3 - HCl Storage Tank Absorber																	1		
EQT0120	2C-4 - C/A Cooling Tower				1													1		
FUG0007	2C-5 - C/A Fugitive Emissions											3						1		
EQT0121	2C-6 - C/A Emergency Generators			1	1	2										2				
EQT0122	2M-1 - Cracking Furnace A			1	1	2										2				
EQT0123	2M-2 - Cracking Furnace B			1	1	2										2				
EQT0124	2M-3 - Cracking Furnace C			1	1	2										2				
EQT0125	2M-4 - Cracking Furnace D			1	1	2										2				
EQT0126	2M-5 – Gas Thermal Oxidizer A			1	1	2	1				1					2		1		

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		LAC 33:III.Chapter																		
ID No.:	Description	5▲	9	11	13	15	2103	2107	2108	2113	2115	2121	2122	2147	2153	22	29*	51*	56	59*
EQT0127	2M-6 – Gas Thermal Oxidizer B			1	1	2	1				1					2		1		
EQT0128	2M-7 - VCM Cooling Tower				1													1		
FUG0008	2M-8 - VCM Unit Fugitive Emissions									1			1					1		
FUG0009	2M-9 - VCM Unit Fugitives Emissions 2																	1		
FUG0010	2M-10 - VCM Unit Fugitives Emissions 3																	1		
EQT0129	2M-11 - VCM Emergency Generators			1	1	2										2				
RLP0010	2MCL-301 - Cracking Furnace Initial Quench Process Vents										1			3				1		
RLP0011	2MCL-302 - Cracking Furnace Initial Quench Process Vents										1			3				1		
RLP0012	2MCL-303 - Cracking Furnace Initial Quench Process Vents										1			3				1		
RLP0013	2MCL-304 - Cracking Furnace Initial Quench Process Vents										1			3				1		
RLP0014	2MRE-203 - OHC Reactor Initial Quench Process Vents										1			3				1		
RLP0015	2MRE-204 - OHC Reactor Initial Quench Process Vents										1			3				1		

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Table 1. Applicable Louisiana and Federal Air Quality Requirements

ID No.:	Description	LAC 33:III.Chapter																		
		5▲	9	11	13	15	2103	2107	2108	2113	2115	2121	2122	2147	2153	22	29*	51*	56	59*
RLP0016	2MRE-205 - OHC Reactor Initial Quench Process Vents										1			3				1		
RLP0036	2MCL-204 - OHC Train CO2 Stripper Process Vents										1			3				1		
RLP0037	2MCL-205 - OHC Train CO2 Stripper Process Vents										1			3				1		
RLP0017	2MRE-101 DC Reactor Process Vents										1			3				1		
RLP0018	2MRE-102 DC Reactor Process Vents										1			3				1		
RLP0038	2MRE-103 DC Reactor Process Vents										1			3				1		
RLP0019	2MTK-105 DC Product Separator Vent										1			3				1		
RLP0039	2MCL-221 - Process Wastewater Stripper Vents										1				3			1		
RLP0040	2MCL-222 - Process Wastewater Stripper Vents										1				3			1		
RLP0032	2MCL-631 - Process Area StormWater Stripper Vents										1							1		
RLP0033	2MCL-632 - Process Area StormWater Stripper Vents										1							1		

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		LAC 33:III.Chapter																		
ID No.:	Description	5▲	9	11	13	15	2103	2107	2108	2113	2115	2121	2122	2147	2153	22	29*	51*	56	59*
RLP0026	2MCL-401 - EDC Purification Process Vents										1			3				1		
RLP0027	2MCL-402 - EDC Purification Process Vents										1			3				1		
RLP0028	2MCL-403 - EDC Purification Process Vents										1			3				1		
RLP0029	2MCL-404 - EDC Purification Process Vents										1			3				1		
RLP0030	2MCL-405 - EDC Purification Process Vents										1			3				1		
EQT0162	2VCLD-RC - VCM Railcar Loading Racks							1										1		
EQT0163	2VCLD-SD - VCM Marine Loading Racks								1									1		
EQT0164	2EDLD-SD - EDC Marine Loading Racks								1									1		
EQT0134	2MTK-491 - EDC Intermediate Storage Tanks						1				3							1		
EQT0135	2MTK-492 - EDC Intermediate Storage Tanks						1				3							1		
EQT0136	2MTK-493 - EDC Intermediate Storage Tanks						1				3							1		

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Table 1. Applicable Louisiana and Federal Air Quality Requirements

ID No.:	Description	LAC 33:III.Chapter																		
		5▲	9	11	13	15	2103	2107	2108	2113	2115	2121	2122	2147	2153	22	29*	51*	56	59*
EQT0137	2MTK-494 - EDC Intermediate Storage Tanks						1				3							1		
EQT0138	2MTK-495 - EDC Intermediate Storage Tanks						1				3							1		
EQT0139	2MTK-496 - By Product Storage						1				3							1		
EQT0140	2MTK-499A - No.1 By-Product Tank						1				3							1		
EQT0141	2MTK-499B - No.2 By-Product Tank						1				3							1		
EQT0166	2MTK-501 - Feed Tank						1				3							1		
EQT0142	2MTK-719A - No. 1 Wastewater Tank						3				3							1		
EQT0143	2MTK-719B - No. 2 Wastewater Tank						3				3							1		
EQT0146	2MDCW-1 - DC Wastewater Streams														3			1		
EQT0147	2MDCW-2 - DC Wastewater Streams														3			1		
EQT0148	2MOHCW-1 - OHC Wastewater Streams														3			1		
EQT0149	2MOHCW-2 - OHC Wastewater Streams														3			1		
EQT0150	2MOHCW-3 - OHC Wastewater Streams														3			1		
EQT0151	2MOHCW-4 - OHC Wastewater Streams														3			1		
EQT0152	2MEP-1 - EDC Purification Wastewater Stream														3			1		

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

I. Table 1. Applicable Louisiana and Federal Air Quality Requirements

ID No.:	Description	LAC 33:III.Chapter																		
		5▲	9	11	13	15	2103	2107	2108	2113	2115	2121	2122	2147	2153	22	29*	51*	56	59*
EQT0157	2MGTO-1 Gas Thermal Oxidizer A and Scrubber Bottoms Wastewater Stream														3			1		
EQT0158	2MGTO-2 Gas Thermal Oxidizer A and Scrubber Bottoms Wastewater Stream														3			1		
GRP0001	2M-CAP Gas Thermal Oxidizer Cap																			

* The regulations indicated above are State Only regulations.

▲ All LAC 33:III Chapter 5 citations are federally enforceable including LAC 33:III.501.C.6 citations, except when the requirement found in the "Specific Requirements" report specifically states that the regulation is State Only.

KEY TO MATRIX

1 -The regulations have applicable requirements that apply to this particular emission source.
-The emission source may have an exemption from control stated in the regulation. The emission source may not have to be controlled but may have monitoring, recordkeeping, or reporting requirements.

2 -The regulations have applicable requirements that apply to this particular emission source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.

3 -The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.

Blank – The regulations clearly do not apply to this type of emission source.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		40 CFR 60 NSPS							40 CFR 61				40 CFR 63 NESHAP						40 CFR		
ID No.:	Description	A	Db	Dc	Kb	VV	NNN	RRR	A	F	V	FF	A	F	G	H	Q	IIII	52	64	68
UNF0001	Entire Facility	1							1	1		1	1					3	1	3	1
EQT0112	2U-1 - Boiler A		1																1		
EQT0113	2U-2 - Boiler B		1																1		
EQT0114	2U-3 - 35% HCl Tank Absorber																				
FUG0006	2U-4 - Fugitive Emission (Bio)									3		3		3	3						
EQT0115	2U-5 - Ship Dock Emergency Pump																				
EQT0116	2U-6 - Utility Emergency Generator (Bio)																				
EQT0117	2C-1 - No.2 Chlorine Scrubber						3	3													
EQT0118	2C-2 - HCl Scrubber						3	3													
EQT0119	2C-3 - HCl Storage Tank Absorber																				
EQT0120	2C-4 - C/A Cooling Tower																3		1		
FUG0007	2C-5 - C/A Fugitive Emissions																				
EQT0121	2C-6 - C/A Emergency Generators																				
EQT0122	2M-1 - Cracking Furnace A			3															1		
EQT0123	2M-2 - Cracking Furnace B			3															1		
EQT0124	2M-3 - Cracking Furnace C			3															1		
EQT0125	2M-4 - Cracking Furnace D			3															1		
EQT0126	2M-5 – Gas Thermal Oxidizer A			1						1		1		1	1				1		

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		40 CFR 60 NSPS							40 CFR 61				40 CFR 63 NESHAP						40 CFR		
ID No.:	Description	A	Db	Dc	Kb	VV	NNN	RRR	A	F	V	FF	A	F	G	H	Q	IIII	52	64	68
EQT0127	2M-6 – Gas Thermal Oxidizer B			1						1		1		1	1				1		
EQT0128	2M-7 - VCM Cooling Tower													1			3		1		
FUG0008	2M-8 - VCM Unit Fugitive Emissions					3				1	3			1		1					
FUG0009	2M-9 - VCM Unit Fugitives Emissions 2					3				1	3			1		1					
FUG0010	2M-10 - VCM Unit Fugitives Emissions 3					3				1	3			1		1					
EQT0129	2M-11 - VCM Emergency Generators																				
RLP0010	2MCL-301 - Cracking Furnace Initial Quench Process Vents							2		1				1	1						
RLP0011	2MCL-302 - Cracking Furnace Initial Quench Process Vents							2		1				1	1						
RLP0012	2MCL-303 - Cracking Furnace Initial Quench Process Vents							2		1				1	1						
RLP0013	2MCL-304 - Cracking Furnace Initial Quench Process Vents							2		1				1	1						
RLP0014	2MRE-203 - OHC Reactor Initial Quench Process Vents							1		1				1	1						
RLP0015	2MRE-204 - OHC Reactor Initial Quench Process Vents							1		1				1	1						
RLP0016	2MRE-205 - OHC Reactor Initial Quench Process Vents							1		1				1	1						

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		40 CFR 60 NSPS							40 CFR 61				40 CFR 63 NESHAP						40 CFR		
ID No.:	Description	A	Db	Dc	Kb	VV	NNN	RRR	A	F	V	FF	A	F	G	H	Q	IIII	52	64	68
RLP0036	2MCL-204 - OHC Train CO2 Stripper Process Vents							1		1				1	1						
RLP0037	2MCL-205 - OHC Train CO2 Stripper Process Vents							1		1				1	1						
RLP0017	2MRE-101 DC Reactor Process Vents							1		3				1	1						
RLP0018	2MRE-102 DC Reactor Process Vents							1		3				1	1						
RLP0038	2MRE-103 DC Reactor Process Vents							1		3				1	1						
RLP0019	2MTK-105 DC Product Separator Vent						1			3				1	1						
RLP0039	2MCL-221 - Process Wastewater Stripper Vents									1				1	1						
RLP0040	2MCL-222 - Process Wastewater Stripper Vents									1				1	1						
RLP0032	2MCL-631 - Process Area StormWater Stripper Vents													1							
RLP0033	2MCL-632 - Process Area StormWater Stripper Vents													1							
RLP0026	2MCL-401 - EDC Purification Process Vents						1			1				1	1						
RLP0027	2MCL-402 - EDC Purification Process Vents						1			1				1	1						

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		40 CFR 60 NSPS							40 CFR 61				40 CFR 63 NESHAP						40 CFR		
ID No.:	Description	A	Db	Dc	Kb	VV	NNN	RRR	A	F	V	FF	A	F	G	H	Q	IIII	52	64	68
RLP0028	2MCL-403 - EDC Purification Process Vents						1			1				1	1						
RLP0029	2MCL-404 - EDC Purification Process Vents						1			1				1	1						
RLP0030	2MCL-405 - EDC Purification Process Vents						1			1				1	1						
EQT0162	2VCLD-RC - VCM Railcar Loading Racks									1				3							
EQT0163	2VCLD-SD - VCM Marine Loading Racks									1				3			2				
EQT0164	2EDLD-SD - EDC Marine Loading Racks									3				3			2				
EQT0134	2MTK-491 - EDC Intermediate Storage Tanks				1									1	1						
EQT0135	2MTK-492 - EDC Intermediate Storage Tanks				1									1	1						
EQT0136	2MTK-493 - EDC Intermediate Storage Tanks				1									1	1						
EQT0137	2MTK-494 - EDC Intermediate Storage Tanks				1									1	1						

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		40 CFR 60 NSPS							40 CFR 61				40 CFR 63 NESHAP						40 CFR		
ID No.:	Description	A	Db	Dc	Kb	VV	NNN	RRR	A	F	V	FF	A	F	G	H	Q	IIII	52	64	68
EQT0138	2MTK-495 - EDC Intermediate Storage Tanks				1									1	1						
EQT0139	2MTK-496 - By Product Storage				1					1				1	1						
EQT0140	2MTK-499A - No.1 By-Product Tank				1					1				1	1						
EQT0141	2MTK-499B - No.2 By-Product Tank				1					1				1	1						
EQT0166	2MTK-501 - Feed Tank				1					1				1	1						
EQT0142	2MTK-719A - No. 1 Wastewater Tank				2									1	1						
EQT0143	2MTK-719B - No. 2 Wastewater Tank				2									1	1						
EQT0146	2MDCW-1 - DC Wastewater Streams									3				1	1						
EQT0147	2MDCW-2 - DC Wastewater Streams									3				1	1						
EQT0148	2MOHCW-1 - OHC Wastewater Streams									1				1	1						
EQT0149	2MOHCW-2 - OHC Wastewater Streams									1				1	1						
EQT0150	2MOHCW-3 - OHC Wastewater Streams									1				1	1						
EQT0151	2MOHCW-4 - OHC Wastewater Streams									1				1	1						
EQT0152	2MEP-1 - EDC Purification Wastewater Stream									1				1	1						

LDEQ-EDMS Document 36700926, Page 50 of 631

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

		40 CFR 60 NSPS							40 CFR 61				40 CFR 63 NESHAP						40 CFR		
ID No.:	Description	A	Db	Dc	Kb	VV	NNN	RRR	A	F	V	FF	A	F	G	H	Q	IIII	52	64	68
EQT0157	2MGTO-1 Gas Thermal Oxidizer A and Scrubber Bottoms Wastewater Stream									3				3	3						
EQT0158	2MGTO-2 Gas Thermal Oxidizer A and Scrubber Bottoms Wastewater Stream									3				3	3						
GRP0001	2M-CAP Gas Thermal Oxidizer Cap																		1		

KEY TO MATRIX

1 -The regulations have applicable requirements that apply to this particular emission source.
-The emission source may have an exemption from control stated in the regulation. The emission source may not have to be controlled but may have monitoring, recordkeeping, or reporting requirements.

2 -The regulations have applicable requirements that apply to this particular emission source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.

3 -The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.

Blank – The regulations clearly do not apply to this type of emission source.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
UNF001 – Entire Facility	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	40 CFR 63 Subpart IIIII – National Emission Standards for Hazardous Air Pollutants: Mercury Cell Chlor-Alkali Plants (40CFR 63.8182(a))	DOES NOT APPLY – Facility is not a mercury cell chlor-alkali plant
EQT0112 & EQT0113 – 2U-1,2: Boilers A & B	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Control of Nitrogen Oxides (LAC 33:III.2201.C.15)	EXEMPT – Proposed State-Only limit is more stringent than the NOx emission limit for industrial boilers
FUG0006 – 2U-4: Fugitive Emissions (Bio)	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153)	DOES NOT APPLY – Biological treatment system does not receive any wastewaters meeting the definition of Affected VOC Wastewater Stream as defined in LAC 33:III.2153.A.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61.65(b)(9))	DOES NOT APPLY – Biological wastewater treatment system does not receive any untreated in process wastewater from a unit subject to the Vinyl NESHAP.
	NESHAP Subpart FF – National Emission Standard for Benzene Waste operations (40 CFR 61.340))	DOES NOT APPLY – Compliance with SOCMI HON Group 1 and Group 2 wastewater requirements supersedes NESHAP Subpart FF requirements.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
FUG0006 – 2U-4: Fugitive Emissions (Bio) (Continued)	40 CFR 63 Subpart F – National Emission Standards for Hazardous Air Pollutants from the SOCMI (HON) (40 CFR 63.100)	DOES NOT APPLY – Biological treatment system does not receive any Group 1 and/or Group 2 wastewater streams from a HON regulated unit.
	40 CFR 63 Subpart G – National Emission Standards for Hazardous Air Pollutants from the SOCMI for Process Vents, Storage Vessels, Transfer Operations and Wastewater (HON) (40 CFR 63.110)	DOES NOT APPLY – Biological treatment system does not receive and Group 1 and/or Group 2 wastewater streams from a HON regulated unit.
EQT0115 & EQT0116 – 2U-5 & 2U-6: Ship Dock Emergency, Utility Emergency Generator (Bio)	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C)	EXEMPT – Emergency stationary internal combustion engines
EQT0117 - 2C-1: No.2 Chlorine Scrubber	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Vent Stream is not in VOC service.
	NSPS Subpart NNN – SOCMI Distillation Operations (40 CFR 60.660)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
EQT0117 - 2C-1: No.2 Chlorine Scrubber (Continued)	NSPS Subpart RRR – SOCMI Reactor Operations (40 CFR 60.700)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.
EQT0118 - 2C-2: HCl Scrubber	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Vent Stream is not in VOC service.
	NSPS Subpart NNN – SOCMI Distillation Operations (40 CFR 60.660)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.
	NSPS Subpart RRR – SOCMI Reactor Operations (40 CFR 60.700)	DOES NOT APPLY – Chlorine Scrubber is located in Chlor-Alkali Plant which is not a SOCMI facility.
EQT0120 - 2C-4: C/A Cooling Tower	40 CFR 63 Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers (40 CFR 63.400)	DOES NOT APPLY – The facility does not use chromium based water treatment chemicals in its cooling waters.
FUG0007 - 2C-5: C/A Fugitive Emissions	Fugitive Emission Control (LAC 33:III.2121)	DOES NOT APPLY – The C/A Unit is not a SOCMI facility or any other listed facility per LAC 33:III2121.A
EQT0121 - 2C-6 C/A Emergency Generators	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.

LDEQ-EDMS Document 36700926, Page 54 of 631

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C)	EXEMPT – Emergency stationary internal combustion engines
EQT0122, EQT0123, EQT0124, & EQT0125 – 2M-1,2,3,4: Cracking Furnaces A, B, C, and D (Combustion only)	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C.15)	EXEMPT – Proposed State-Only limit is more stringent than the NOx emission limit for industrial boilers
	NSPS Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (40 CFR 60.40c)	DOES NOT APPLY – Units do not meet the definition of a "Steam Generating Unit" as defined in Subpart Dc.
EQT0126 & EQT0127 – 2M-5,6: Thermal Oxidizer A & B	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Control of Nitrogen Oxides (LAC 33:III.2201.C.15)	EXEMPT – Thermal Oxidizers are exempt per LAC 33:III.2201.C.7

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
EQT0128 – 2M-7: VCM Cooling Tower	40 CFR 63 Subpart Q – National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers (40 CFR 63.400)	DOES NOT APPLY – The facility does not use chromium based water treatment chemicals in its cooling waters.
FUG0008 - 2M-8: VCM Unit Fugitive Emissions	Fugitive Emission Control for Ozone Nonattainment Areas and Specified Parishes (LAC 33:2122)	EXEMPT – Any facility which has in place a fugitive emissions monitoring program which controls to a higher degree than required by this regulation upon submittal of a description of the program to the administrative authority per LAC 33:III.2122.D.5
	NSPS Subpart VV – Equipment Leaks of VOC in the SOCMI Industry (40 CFR 60.480)	DOES NOT APPLY – Compliance with this Subpart is achieved by complying with 40 CFR 63, Subpart H per 40 CFR 63.160(b)(1)
	NESHAP Subpart V – National Emission Standard for Equipment Leaks (40 CFR 61.240)	DOES NOT APPLY – Compliance with this Subpart is achieved by complying with 40 CFR 63, Subpart H per 40 CFR 63.160(b)(2)
EQT0129 - 2M-11: VCM Emergency Generators	Emission Standards for Sulfur Dioxide (LAC 33:III.1503.C)	EXEMPT – Sulfur Dioxide emissions less than 250 tons per year.
	Continuous Emission Monitoring (Emissions Standards for Sulfur Dioxide) (LAC 33:III.1511)	DOES NOT APPLY – Continuous monitoring is not required for sources emitting <100 TPY of SO2
	Control of Nitrogen Oxides (LAC 33:III.2201.C)	EXEMPT – Emergency stationary internal combustion engines

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
RLP0010, 11, 12, & 13 – 2MCL-301, 302, 303, & 304: Cracking Furnace Initial Quench Process Vents	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NSPS Subpart RRR – SOCMI Reactor Operations (40 CFR 60.700)	EXEMPT – Facility meets the requirements specified in 60.700(c)(5) and 60.705(r).
RLP0014, 15, &16 – 2MRE-203,204&205: OHC Reactor Initial Quench Process vents; RLP0036 & 37 – 2MCL-204,205: OCH Train CO2 Stripper Process Vents	Limiting VOC Emissions from SOCMI reactor Processes and Distillation Operations (LAC 33.III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
RLP0017,18,38 – 2MRE-101, 102, 103: DC Reactor Process Vents	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61)	EXEMPT – NESHAP Subpart F does not apply to direct chlorination (DC) reactor processes
RLP0019 – 2MTK-105: DC Product Separator Vent	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61)	EXEMPT – NESHAP Subpart F does not apply to direct chlorination (DC) reactor processes
RLP0039, 40-2MCL-221,222: Process Wastewater Stripper vents	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage component, handling , transfer, or treatment facility subject to the HON is exempt from the provisions of this section
RLP0026, 27, 28, 29, & 30 – 2MCL-401, 402, 403, 404, & 405: EDC Purification Columns vents	Limiting VOC Emissions from SOCMI Reactor Processes and Distillation Operations (LAC 33:III.2147.A.2.g)	DOES NOT APPLY – Any reactor process or distillation operation subject to the HON is not subject to this subchapter.
	NSPS Subpart NNN – SOCMI Distillation Operations (40 CFR 61.62(a))	Exemption applies for NSPS testing, monitoring, recordkeeping, and reporting under HON overlap provisions at 60.110(d)(6)

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
EQT0162 – 2VCLD-RC: VCM Railcar Loading Racks	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63.100(f))	DOES NOT APPLY – Loading racks, loading arms, or loading losses that vapor balance during all loadingoperations are not subject to the requirements of Subparts A, F, G, and H
EQT0163 – 2VCLD-SD: VCM Marine Loading Racks	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63.100(f))	DOES NOT APPLY – 40 CFR 63 Subparts F and G do not apply to marine loading operations.
	40 CFR 63 Subpart Y – National Emission Standard for Marine Tank Vessel Loading Operations (40 CFR 63.560)	EXEMPT – The provisions pertaining to the MACT standards in 63.562(b) do not apply to marine tank vessel loading operations where emissions are reduced by using vapor balancing systems.
EQT0164 – 2EDLD-SD: EDC Marine Loading Racks	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61.65(b)(1) and (b)(2))	DOES NOT APPLY – Requirement is to reduce the quantity of the VCM in all parts of each loading line that are to opened to atmosphere to ≤ 0.13 scf. VCM removed from loading lines is to be controlled to ≤ 10 ppmv (3-hr average)
	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63.100(f))	DOES NOT APPLY – 40 CFR 63 Subparts F and G do not apply to marine loading operations.
	40 CFR 63 Subpart Y – National Emission Standard for Marine Tank Vessel Loading Operations (40 CFR 63.560)	EXEMPT – The provisions pertaining to the MACT standards in 63.562(b) do not apply to marine tank vessel loading operations where emissions are reduced by using vapor balancing systems.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
EQT0134, 135, 136, 137, 138 – 2MTK-491, 492, 493, 494, 495: EDC Intermediate Storage tanks	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0139 – 2MTK-496: By-Product Storage Tank	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0140, 141 – 2MTK-499 A & B: By-Product Tanks 1 & 2	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0166 – 2MTK-501: Feed Tank	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.
EQT0142, 143 – 2MTK-719 A & B: Wastewater Tanks 1 & 2	Storage of VOC Compounds (LAC 33:III.2103)	DOES NOT APPLY – Tanks store material having a maximum true vapor pressure< 1.5 psia
	Waste Gas Disposal (LAC 33:III.2115)	DOES NOT APPLY – Storage Tank vents are not subject to LAC 33:III.2115.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
EQT0146, 147 – 2MDCW-1, 2: DC Wastewater Streams	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage, handling, transfer, or treatment facility subject to the HON is exempt from the provisions of this section.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40 CFR 61.65(b)(9)(i) & (ii))	EXEMPT – NESHAP Subpart F does not apply to direct chlorination (DC) reactor processes
EQT0148, 149, 150, & 151 – 2MOHCW-1,2,3,4: OHC Wastewater Streams	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage, handling, transfer, or treatment facility subject to the HON is exempt from the provisions of this section.
EQT0152 – 2MEP-1: EDC Purification Wastewater Stream	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.G.6)	DOES NOT APPLY – Any component of a wastewater storage, handling, transfer, or treatment facility subject to the HON is exempt from the provisions of this section.
EQT0157, 158 – 2MGTO-1,2: Gas Thermal Oxidizer A & B and Scrubber Bottoms Waste water streams	Limiting VOC Emissions from Industrial Wastewater (LAC 33:III.2153.A)	DOES NOT APPLY – Wastewater does not meet the definition of Affected VOC Wastewater.
	NESHAP Subpart F – National Emission Standard for Vinyl Chloride (40CFR 61.65(b)(9)(i) & (ii))	Does Not Apply – Wastewater streams are < 5 ppmw VOHAP.

LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Shintech Louisiana LLC – Shintech Plaquemine Plant 2
Agency Interest No.: 126578
Shintech Louisiana LLC
Plaquemine, Iberville Parish, Louisiana

XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
EQT0157, 158 – 2MGTO-1,2: Gas Thermal Oxidizer A & B and Scrubber Bottoms Waste water streams (continued)	40 CFR 63 Subpart F – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI (40 CFR 63. 101)	DOES NOT APPLY – Wastewater stream does not meet the definition of Wastewater in Subpart F
	40 CFR 63 Subpart G – National Emission Standard for Organic Hazardous Air Pollutants from the SOCMI for Process Vents, Storage Vessels, Transfer Operations, and Wastewater (40 CFR 63.138(b)(2), 63.139(c)(2), 63.138(d), 63.139(c))	DOES NOT APPLY - Wastewater stream does not meet the definition of Wastewater in Subpart F

The above table provides explanation for both the exemption status or non-applicability of a source cited by 1, 2 or 3 in the matrix presented in Section X (Table 1) of this permit.

40 CFR PART 70 GENERAL CONDITIONS

A. The term of this permit shall be five (5) years from date of issuance. An application for a renewal of this 40 CFR Part 70 permit shall be submitted to the administrative authority no later than six months prior to the permit expiration date. Should a complete permit application not be submitted six months prior to the permit expiration date, a facility's right to operate is terminated pursuant to 40 CFR Section 70.7(c)(ii). Operation may continue under the conditions of this permit during the period of the review of the application for renewal. [LAC 33:III.507.E.1, E.3, E.4, reference 40 CFR 70.6(a)(2)]

B. The conditions of this permit are severable; and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. [Reference 40 CFR 70.6(a)(5)]

C. Permittee shall comply with all conditions of the 40 CFR Part 70 permit. Any permit noncompliance constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [LAC 33:III.507.B.2, reference 40 CFR 70.6(a)(6)(i) & (iii)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [Reference 40 CFR 70.6(a)(6)(ii)]

E. This permit does not convey any property rights of any sort, or an exclusive privilege. [Reference 40 CFR 70.6(a)(6)(iv)]

F. The permittee shall furnish to the permitting authority, within a reasonable time, any information that the permitting authority may request in writing to determine whether cause exists for modifying, revoking, and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the permitting authority copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality. A claim of confidentiality does not relieve the permittee of the requirement to provide the information. [LAC 33:III.507.B.2, 517.F, reference 40 CFR 70.6(a)(6)(v)]

G. Permittee shall pay fees in accordance with LAC 33:III.Chapter 2 and 40 CFR Section 70.6(a)(7). [LAC 33:III.501.C.2, reference 40 CFR 70.6(a)(7)]

40 CFR PART 70 GENERAL CONDITIONS

H. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the permitting authority or authorized representative to perform the following:

1. enter upon the permittee's premises where a 40 CFR Part 70 source is located or emission-related activity is conducted, or where records must be kept under the conditions of the permit [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(i)];

2. have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(ii)];

3. inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(iii)]; and

4. as authorized by the Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(iv)]

I. All required monitoring data and supporting information shall be kept available for inspection at the facility or alternate location approved by the agency for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Supporting information includes calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and all reports required by the permit.
[Reference 40 CFR 70.6(a)(3)(ii)(B)]

J. Records of required monitoring shall include the following:

1. the date, place as defined in the permit, and time of sampling or measurements;
2. the date(s) analyses were performed;
3. the company or entity that performed the analyses;
4. the analytical techniques or methods used;
5. the results of such analyses; and
6. the operating conditions as existing at the time of sampling or measurement.

[Reference 40 CFR 70.6(a)(3)(ii)(A)]

K. Permittee shall submit at least semiannually, reports of any required monitoring, clearly identifying all instances of deviations from permitted monitoring requirements, certified by a responsible company official. For previously reported deviations, in lieu of attaching the individual deviation reports, the semiannual report may clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. The semiannual reports shall be submitted to the Office of Environmental Compliance, Enforcement Division by March 31 for the preceding period encompassing July through December and September 30 for the preceding period encompassing January through June. Any quarterly deviation report required to be submitted by March 31 or September 30 in accordance with Part 70 General Condition R may be consolidated with the semi-annual reports required by this general condition as long as the report clearly indicates this and all required information is included and clearly delineated in the consolidated report. [LAC 33:III.507.H, reference 40 CFR 70.6(a)(3)(iii)(A)]

L. The permittee shall submit at least semiannual reports on the status of compliance pursuant to 40 CFR Section 70.5 (c) (8) and a progress report on any applicable schedule of compliance pursuant to 40 CFR Section 70.6 (c) (4). [LAC 33:III.507.H.1, reference 40 CFR 70.6(c)(4)]

40 CFR PART 70 GENERAL CONDITIONS

M. Compliance certifications per LAC 33:III.507.H.5 shall be submitted to the Administrator as well as the permitting authority. For previously reported compliance deviations, in lieu of attaching the individual deviation reports, the annual report may clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. The compliance certifications shall be submitted to the Office of Environmental Compliance, Enforcement Division by March 31 for the preceding calendar year. [LAC 33:III.507.H.5, reference 40 CFR 70.6(c)(5)(iv)]

N. If the permittee seeks to reserve a claim of an affirmative defense as provided in LAC 33:III.507.J.2, the permittee shall, in addition to any emergency or upset provisions in any applicable regulation, notify the permitting authority within 2 working days of the time when emission limitations were exceeded due to the occurrence of an upset. In the event of an upset, as defined under LAC 33:III.507.J, which results in excess emissions, the permittee shall demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that: 1) an emergency occurred and the cause was identified; 2) the permitted facility was being operated properly at the time; and 3) during the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standard or requirement of the permit. [LAC 33:III.507.J.2, reference 40 CFR 70.6(g)(3)(iv) & (i-iii)]

O. Permittee shall maintain emissions at a level less than or equal to that provided for under the allowances that the 40 CFR Part 70 source lawfully holds under Title IV of the Clean Air Act or the regulations promulgated thereunder. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement. No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement. Any such allowance shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Clean Air Act. [Reference 40 CFR 70.6(a)(4)]

P. Any permit issued pursuant to 40 CFR Part 70 may be subject to reopening prior to the expiration of the permit for any of the conditions specified in 40 CFR Section 70.7(f) or LAC 33:III.529. [LAC 33:III.529.A-B, reference 40 CFR 70.7(f)]

Q. Permittee may request an administrative amendment to the permit to incorporate test results from compliance testing if the following criteria are met:

1. the changes are a result of tests performed upon start-up of newly constructed, installed, or modified equipment or operations;

2. increases in permitted emissions will not exceed five tons per year for any regulated pollutant;

3. increases in permitted emissions of Louisiana toxic air pollutants or of federal hazardous air pollutants would not constitute a modification under LAC 33:III. Chapter 51 or under Section 112 (g) of the Clean Air Act;

4. changes in emissions would not require new source review for prevention of significant deterioration or nonattainment and would not trigger the applicability of any federally applicable requirement;

40 CFR PART 70 GENERAL CONDITIONS

5. changes in emissions would not qualify as a significant modification; and

6. the request is submitted no later than 12 months after commencing operation. [LAC 33:III.523.A, reference 40 CFR 70.7(d)]

R. Permittee shall submit prompt reports of all permit deviations as specified below to the Office of Environmental Compliance, Enforcement Division. All such reports shall be certified by a responsible official in accordance with 40 CFR 70.5(d).

1. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.

2. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

3. A written report shall be submitted quarterly to address all permit deviations not included in paragraphs 1 or 2 above. Unless required by an applicable reporting requirement, a written report is not required during periods in which there is no deviation. The quarterly deviation reports submitted on March 31 and September 30 may be consolidated with the semi-annual reports required by Part 70 General Condition K as long as the report clearly indicates this and all required information is included and clearly delineated in the consolidated report. For previously reported permit deviations, in lieu of attaching the individual deviation reports, the quarterly report may clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any permit deviations occurring during the corresponding specified calendar quarter:

   a. Report by June 30 to cover January through March
   b. Report by September 30 to cover April through June
   c. Report by December 31 to cover July through September
   d. Report by March 31 to cover October through December

4. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided such reports are certified in accordance with 40 CFR 70.5(d) and contain all information relevant to the permit deviation. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107. [Reference 40 CFR 70.6(a)(3)(iii)(B)]

S. Permittee shall continue to comply with applicable requirements on a timely basis, and will meet on a timely basis applicable requirements that become effective during the permit term. [Reference 40 CFR 70.5(c)(8)(iii)]

40 CFR PART 70 GENERAL CONDITIONS

T. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:

1. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156;

2. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158;

3. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161;

4. Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with recordkeeping requirements pursuant to 40 CFR 82.166. ("MVAC-like appliance" as defined at 40 CFR 82.152);

5. Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to 40 CFR 82.156; and

6. Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166. [Reference 40 CFR 82, Subpart F]

U. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant. [Reference 40 CFR 82, Subpart B]

V. Data availability for continuous monitoring or monitoring to collect data at specific intervals: Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including calibration checks and required zero and span adjustments), the permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the emissions unit is operating. For purposes of reporting monitoring deviations under Part 70 General Conditions K and R, and unless otherwise provided for in the Specific Requirements (or Table 3) of this permit, the minimum degree of data availability shall be at least 90% (based on a monthly average) of the operating time of the emissions unit or activity being monitored. This condition does not apply to Leak Detection and Repair (LDAR) programs for fugitive emissions (e.g., 40 CFR 60 Subpart VV, 40 CFR 63 Subpart H).

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.

II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.

III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated November 14, 2007, along with supplemental information dated February 12, 2008 and February 27, 2008.

IV. This permit shall become invalid, for the sources not constructed, if:

A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;

B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.

V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.

VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Air Quality Assessment Division.

VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.

IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.

X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.

XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.

A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.

B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.

C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:

1. Report by June 30 to cover January through March
2. Report by September 30 to cover April through June
3. Report by December 31 to cover July through September
4. Report by March 31 to cover October through December

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

D. Each report submitted in accordance with this condition shall contain the following information:

1. Description of noncomplying emission(s);
2. Cause of noncompliance;
3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.

XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:

A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;

B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;

C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and

D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.

XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.

XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.

LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS

XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.

XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services in accordance with LAC 33:I.Chapter 19.Facility Name and Ownership/Operator Changes Process.

XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:

1. Generally be less than 5 TPY
2. Be less than the minimum emission rate (MER)
3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

XIX. For Part 70 sources, certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

EMISSION RATES FOR CRITERIA POLLUTANTS

AI ID: 126578 - Shintech Louisiana LLC - Plaquemine PVC Plant
Activity Number: PER20070007
Permit Number: 3063-V0
Air - Title V Regular Permit Initial

	CO			NOx			PM10			SO2			VOC		
Subject Item	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
Entire Facility															
EQT 0112 2U-1	9.05	10.86	39.64	2.54	3.05	11.13	1.25	1.25	5.48	0.16	0.19	0.68	0.65	0.78	2.85
EQT 0113 2U-2	9.05	10.86	39.64	2.54	3.05	11.13	1.25	1.25	5.48	0.16	0.19	0.68	0.65	0.78	2.85
EQT 0115 2U-5	1.78	3.01	0.06	8.26	13.95	0.27	0.59	0.99	0.02	0.55	0.92	0.02	0.66	1.11	0.02
EQT 0116 2U-6	1.44	3.77	0.05	6.50	16.44	0.21	0.33	0.48	0.01	1.76	8.31	0.06	0.37	0.48	0.01
EQT 0120 2C-4							0.19	0.22	0.81						
EQT 0121 2C-6	2.53	13.83	0.14	11.48	60.34	0.65	0.64	1.76	0.04	2.62	30.51	0.15	0.70	1.77	0.04
EQT 0122 2M-1	4.17	5.00	18.26	0.80	0.96	3.50	0.67	0.80	2.94	0.05	0.06	0.23	0.49	0.58	2.13
EQT 0123 2M-2	4.17	5.00	18.26	0.80	0.96	3.50	0.67	0.80	2.94	0.05	0.06	0.23	0.49	0.58	2.13
EQT 0124 2M-3	4.17	5.00	18.26	0.80	0.96	3.50	0.67	0.80	2.94	0.05	0.06	0.23	0.49	0.58	2.13
EQT 0125 2M-4	4.17	5.00	18.26	0.80	0.96	3.50	0.67	0.80	2.94	0.05	0.06	0.23	0.49	0.58	2.13
EQT 0126 2M-5		6.10			1.40			0.55			0.03			1.10	
EQT 0127 2M-6		6.10			1.40			0.55			0.03			1.10	
EQT 0128 2M-7							0.38	0.46	1.67						
EQT 0129 2M-11	0.98	14.18	0.14	4.48	63.69	0.62	0.29	3.13	0.04	0.61	18.86	0.09	0.32	3.40	0.04
FUG 0006 2U-4													0.26	0.31	1.13
FUG 0008 2M-8													2.50	2.50	10.95
FUG 0009 2M-9													2.85	3.42	0.36
FUG 0010 2M-10													0.33	0.39	0.82
GRP 0005 2M-CAP	6.10		26.74	1.40		6.15	0.55		2.43	0.03		0.12	1.10		4.81

Note: Emission rates in bold are from alternate scenarios and are not included in permitted totals unless otherwise noted in a footnote.

LDEQ-EDMS Document 36700926, Page 71 of 631

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 126578 - Shintech Louisiana LLC - Plaquemine PVC Plant
Activity Number: PER20070007
Permit Number: 3063-V0
Air - Title V Regular Permit Initial

Emission Pt.	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0112 2U-1	Ammonia	2.00	2.40	8.76
EQT 0113 2U-2	Ammonia	2.00	2.40	8.76
EQT 0114 2U-3	Hydrochloric acid	< 0.001	< 0.001	< 0.001
EQT 0117 2C-1	Chlorine	0.24	0.29	1.05
EQT 0118 2C-2	Chlorine	0.002	0.002	0.008
	Hydrochloric acid	0.006	0.007	0.03
EQT 0119 2C-3	Hydrochloric acid	< 0.001	< 0.001	< 0.001
EQT 0120 2C-4	Chlorine	0.10	0.11	0.41
EQT 0122 2M-1	Ammonia	0.45	0.54	1.97
	Benzene	< 0.001	< 0.001	0.001
	Formaldehyde	0.007	0.008	0.03
	Toluene	< 0.001	< 0.001	0.001
EQT 0123 2M-2	Ammonia	0.45	0.54	1.97
	Benzene	< 0.001	< 0.001	0.001
	Formaldehyde	0.007	0.008	0.03
	Toluene	< 0.001	< 0.001	0.001
EQT 0124 2M-3	Ammonia	0.45	0.54	1.97
	Benzene	< 0.001	< 0.001	0.001
	Formaldehyde	0.007	0.008	0.03
	Toluene	< 0.001	< 0.001	0.001
EQT 0125 2M-4	Ammonia	0.45	0.54	1.97
	Benzene	< 0.001	< 0.001	0.001
	Formaldehyde	0.007	0.008	0.03
	Toluene	< 0.001	< 0.001	0.001
EQT 0126 2M-5	1,1-Dichloroethane		0.01	
	1,2-Dichloroethane		0.13	
	Acetaldehyde		0.002	
	Ammonia		0.79	
	Benzene		0.001	
	Carbon tetrachloride		0.04	
	Chlorine		1.55	
	Chloroethane		0.03	
	Chloroform		0.03	
	Chloroprene		0.001	

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 126578 - Shintech Louisiana LLC - Plaquemine PVC Plant
Activity Number: PER20070007
Permit Number: 3063-V0
Air - Title V Regular Permit Initial

Emission Pt.	Pollutant	Avg lb/hr	Max lb/hr	Tons/Year
EQT 0126 2M-5	Hydrochloric acid		1.59	
	Methyl chloride		0.001	
	Vinyl chloride		0.55	
	Vinylidene chloride		0.003	
EQT 0127 2M-6	1,1-Dichloroethane		0.01	
	1,2-Dichloroethane		0.13	
	Acetaldehyde		0.002	
	Ammonia		0.79	
	Benzene		0.001	
	Carbon tetrachloride		0.04	
	Chlorine		1.55	
	Chloroethane		0.03	
	Chloroform		0.03	
	Chloroprene		0.001	
	Hydrochloric acid		1.59	
	Methyl chloride		0.001	
	Vinyl chloride		0.55	
	Vinylidene chloride		0.003	
EQT 0128 2M-7	Chlorine	0.33	0.40	1.45
FUG 0006 2U-4	Methanol	0.06	0.08	0.27
	Vinyl chloride	0.10	0.12	0.45
FUG 0007 2C-5	Chlorine	0.29	0.29	1.28
	Hydrochloric acid	0.19	0.19	0.85
FUG 0008 2M-8	1,1,2,2-Tetrachloroethane	0.001	0.001	0.004
	1,1,2-Trichloroethane	0.03	0.03	0.15
	1,1-Dichloroethane	0.01	0.01	0.03
	1,2-Dichloroethane	1.64	1.64	7.18
	Ammonia	0.07	0.07	0.29
	Carbon tetrachloride	0.03	0.03	0.12
	Chlorine	0.04	0.04	0.18
	Chloroethane	0.01	0.01	0.03
	Chloroform	0.02	0.02	0.08
	Hydrochloric acid	0.25	0.25	1.09
	Vinyl chloride	0.48	0.48	2.12