EPA United States Environmental Protection Agency

Region 6 - Enforcement & Compliance Assurance Division

INSPECTION REPORT

Inspection Date(s):	December 2-6, 2024	
Media Program:	Air	
Regulatory Program(s)	Clean Air Act (CAA) § 112(r) and 40 Code of Federal Regulations (C.F.R.) Part 68 Chemical Accident Risk Management Plan (RMP)	
Company Name:	**Shintech Louisiana, LLC**	
Facility Name:	**Shintech Plaquemine Plant**	
Facility Physical Location:	26270 Highway 405	
(city, state, zip code)	Plaquemine, Louisiana 70764	
Mailing address:	P.O. Box 358	
(city, state, zip code)	Addis, Louisiana 70710	
County/Parish:	Iberville Parish	
Facility Phone Number	225-685-1199	
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FRS Number:	110000572675	
Identification/Permit Number:	1000 0020 2899	
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SIC:		

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Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

United States Environmental Protection Agency (EPA) Region 6, inspectors Kristen Latiolais and Howard Cole ("we") arrived at the Shintech Louisiana, LLC- Plaquemine Plant Facility ("SPP"), operated by ShinTech Louisiana, LLC., in Plaquemine, Louisiana at 8:00 AM on December 2, 2024, for an announced inspection. EPA and Louisiana Department of Environmental Quality (LDEQ) inspectors met with Mark Devall (Process Safety Superintendent), Tim Bergeron (EHS Manager) and their Process Safety Team at the opening conference. I, Kristen Latiolais, presented my credentials to Mark Devall, Tim Bergeron and team and informed them that this was an EPA inspection to evaluate compliance with the requirements of the Chemical Accident Prevention Provisions of Title 40 of the Code of Federal Regulations (C.F.R.) Part 68 under Clean Air Act (CAA) § 112(r). An owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process, as determined under 40 C.F.R. § 68.115, shall comply with the requirements of the CFR Part 68. Employee representatives were invited to participate in the inspection. The facility does not have union representation.

FACILITY DESCRIPTION

Shintech Plaquemine Plant (SPP) is located at 26270 Highway 405, Plaquemine, Louisiana 70764. The facility is in operation 24 hours a day, seven days a week and has approximately 657 employees at the Plaquemine location. The facility start-up of the first SPP-1 plant (PVC-1, VCM-1 & CA-1) began in 2008, the SPP-2 plant (VCM-2, CA-2 & NTY) start up in 2011, PEP-1 startup in 2019 and SPP-3 plant (PVC-2, VCM-3 & CA-3) start up in 2011 & 2024. SPP-4 is currently under construction.

The facility stores more than a threshold quantity for Risk Management Plan (RMP) regulated substances of 1,3 butadiene, ethane, ethylene, methane, propylene, butane, butene, chlorine, hydrogen chloride, vinyl chloride and chloroform.

PROCESS DESCRIPTION

SPP 3 is designed as a vertically integrated polyvinyl chloride (PVC) and vinyl chloride monomer (VCM) manufacturing facility that also produces intermediate products, including chlorine and caustic soda (NaOH as a byproduct) and ethylene dichloride (EDC). Process units include a chlor-alkali (C/A) unit (C/A-3), a Vinyl Chloride Monomer unit (VCM-3), and a PVC Unit (PVC-2). The C/A unit uses brine to produce chlorine (Cl_2), hydrogen (H_2), and sodium hydroxide (NaOH) by a membrane-based electrolysis process. The VCM unit produces EDC by reacting ethylene and chlorine in a direct chlorination reactor. The EDC is purified by distillation and sent to cracking furnaces to yield VCM and hydrochloric acid (HCl). The VCM is purified and sent to storage spheres. EDC that was not cracked is sent back to the EDC purification trains.

Hydrochloric acid (HCl) is recovered and used in a second EDC formation process called oxy-hydrochlorination. Purified VCM is sent to SPP-1 or polymerized to form PVC.

SPP-3 also includes a hydrochloric acid production unit (HAPF-4).

Chlor-Alkali Unit

The C/A-3 Unit is designed to 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 chlorine as follows:

$2NaCl + 2H_2O + electricity \rightarrow Cl_2 + H_2 + 2NaOH$

Raw salt brine will be brought to the plant through a pipeline and stored in a tank. The brine will be crystallized in an evaporator and purified by ion exchanging resin. The purified brine will be sent to the electrolyzer where direct electric current will be applied. The anode and cathode are separated by a membrane to prevent the caustic soda from reacting with the Cl_2. Cl_2 produced at the anode will then be cooled and sent to the VCM unit as raw material. H_2 produced at the cathode will be dehumidified and sent to other facilities including the boilers. A portion of Cl_2 and H_2 gases will be converted to HCl for internal use. Dilute HCl from the HAPF unit will be used internally or shipped by tank car. The lean caustic soda produced at the cathode will be concentrated in an evaporative process to produce commercial grade caustic soda. Emissions from process equipment will be controlled by absorbers. NaOH is to be sold as a by-product.

VCM Unit

Ethylene will be brought to the plant through a pipeline. Cl_2 will be supplied by the C/A-3 Unit. Ethylene will be combined with Cl_2 in a direct chlorination reactor to form EDC as follows:

$C_2H_4 + Cl_2 \rightarrow C_2H_4Cl_2$

Crude EDC will then be purified and sent to cracking furnaces through storage tanks. The natural gas-fired cracking furnaces provide heat to crack EDC yielding VCM and hydrogen chloride as follows:
$C_2H_4Cl_2 \rightarrow C_2H_3Cl$ + Hydrogen Chloride

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

$C_2H_4 + 2HCl + ½O_2 \rightarrow C_2H_4Cl_2 + H_2O$

Product VCM will be sent to (1) the PVC unit in either SPP-1 or SPP-3, (2) a tank car loading facility for transport, or (3) pipeline transportation. Pure EDC will also be able to be transported through the marine loading dock by ship.

Emissions from process equipment will be controlled by dedicated gas thermal oxidizers (GTOs) and nitrogen oxide (NO_X) control devices. The GTOs will be equipped with waste heat recovery boilers.

PVC Unit

VCM is received via pipeline from the VCM Unit. The VCM is introduced to the PVC reactors from a charge tank. The PVC suspension polymerization process produces PVC in the form of a slurry by

polymerizing VCM in water with reaction initiators and suspending agents. Other raw materials essential to the process are suspending agents, reaction initiators, inhibitors, and organic solvents. The polymerization process is a closed reactor operation with clean wall technology. A closed reactor does not require the reactor to be opened for every batch, minimizing VCM losses to the atmosphere due to reactor openings.

The un-reacted VCM is removed by degassing to the gasholders and routed to the VCM recovery process. Recovered gas is compressed, liquefied, and purified for re-use. The non-condensable gases (non-recovered VCM) in the recovery units are sent to the thermal oxidizers in the VCM Unit.

The PVC slurry is discharged to the slurry tanks and fed to stream stripping columns. VCM recovered from the steam stripping columns is sent to VCM recovery units for reuse in the process. The PVC slurry is subsequently separated into PVC wet cake and water by centrifuges. The PVC wet cake is then dried in a fluidized bed dryer, which generates PVC granules. The dried PVC granules (final product) are screened by sieves to remove oversized granules and sent to storage silos. Several grades of product are manufactured. The final product is transported to customers by truck and railcars.

Hydrochloric Acid Production Furnace (HAPF-4)

As a waste treatment system, the HAPF-4 unit will consist of liquid waste storage tanks, a waste storage feed tank, a combustion chamber (i.e., the furnace), a waste heat boiler, a bubble cap tray acid absorber, a bubble cap tray caustic scrubber, a selective catalytic reduction system (SCR) for NO_X control, and an exhaust stack.

Liquid waste will be produced by the distillation process used at VCM-3. This waste will be fed into HAPF-4 as fuel to produce hydrochloric acid (HCl), which will be scrubbed from the off-gas and recycled back to VCM-3 for reuse. The scrubbed off-gas will be routed through a SCR system to reduce NO_x before it is discharged to the atmosphere through an exhaust stack.

PEP-1

The Shintech PEP-1 is designed to produce 670 kilotons per year (kta) (1.477 billion pound per year) polymer grade ethylene production by thermal cracking of an ethane feedstock.

Cracking Section

The fresh ethane and recycled ethane stream from the process along with a dilution steam are fed to cracking heaters to heat the ethane to cracking temperature. Propane and butane obtained from the byproducts of cracking may be recycled in heaters for cracking. The cracked gas from the heaters is then sent to the quench tower.

Quench Section

The cracked gas from the heater is cooled and partially condensed by recirculating water in the quench tower. The condensed heavy hydrocarbons and dilution steam along with quench water are separated subsequently and the non-condensable gas exits the top of the quench tower.

Compression Section

The quench tower overhead vapors are compressed in the multiple stage centrifugal charge gas compressors.

Acid gases are removed from the charge gas during the compression stage. The acid gas removal section consists of caustic/water wash tower to provide removal of the acid gases. After acid gas removal, charge gas is dried in a drying system and then the effluent is chilled by refrigerants such as propane or propylene refrigerant, ethylene refrigerant etc.

Recovery Section
The feeds from the charge gas chilling train are sent to the series of distillation columns such as demethanizer, deethanizer, debutanizer, and ethylene fractionator. By going through those columns, charge gas is separated into products/byproducts such as ethylene, ethane, hydrogen/methane off gas, propylene, propane, C_4 compounds and pyrolysis gasoline. The ethylene product is sent to the VCM (Vinyl Chloride Monomer) plant as the raw material for PVC product. Ethane is recycled back to the cracking heaters after combined with the ethane feed.

Hydrogen/methane off gas and propane are used as fuel.

Propylene and crude 1,3-butadiene are either exported or converted to propane and butane by hydrogenation and recycled to heaters for cracking. Pyrolysis gasoline is either exported or internally used as fuel for the boilers.

Refrigeration Systems
The ethylene plant features two refrigerant systems: a propane or propylene refrigerant system and an ethylene refrigerant system. Both systems utilize a steam turbine-driven centrifugal compressor to provide refrigeration at various levels.

Flare System
A flare system provides a means to collect and burn hydrocarbon process streams that have been relieved or drained to the flare headers during start-up, turnaround, and emergency situations.

Thermal Oxidizer
Two thermal oxidizers are used to burn off gas from the spent caustic oxidation unit, storage tanks, and loading facilities.

Section II - OBSERVATIONS

The documentation review began onsite with the Shintech Louisiana, LLC personnel as listed on the sign in sheets, **see Attachment 2.**

This inspection was a routine compliance inspection conducted in order to determine compliance with the RMP regulations. A file review in EDMS was conducted before the on-site compliance inspection to determine compliance history. A review of the air permit conditions was conducted prior to the facility inspection.

Federal and State inspectors, conducted a walk-through of the facility, accompanied by facility representatives, to observe the facility process equipment, overall operations and major emission sources at the facility. Operators from the PVC, VCM and CA units assisted during the facility tour. The

facility was in operation at the time of inspection. No visible emissions or unusual odors were noted at the time of inspection.

40 C.F.R. Part 68 – CHEMICAL ACCIDENT PREVENTION PROVISION

Subpart A – General

40 C.F.R. § 68.10 Applicability – SPP is a stationary source that has more than a threshold quantity of regulated substances in their process. The facility is subject to the Occupational Safety and Health Administration's (OSHA) Process Safety Management (PSM) Standard (29 C.F.R. § 1910.119) and is therefore a RMP Program 3 facility.

40 C.F.R. § 68.12 General requirements – SPP submitted their most recent 5-year Risk Management Plan submission update on August 27, 2024. The Risk Management Plan listed the following chemicals as present in processes in amounts greater than the threshold quantity, prescribed in the standard, and therefore classified as RMP Program 3 regulated substances by rule: butadiene, ethane, ethylene, methane, propylene, butane, butene, chlorine, hydrogen chloride, vinyl chloride and chloroform.

40 C.F.R. § 68.15 Management – Shintech has developed a management system to oversee the implementation of the RMP Program elements. SPP also provided an organizational chart that outlined the positions for the implementation of the individual elements of the RMP.

Subpart B – Hazard Assessment

40 C.F.R. § 68.20 Applicability – The owner or operator of a stationary source subject to this part shall prepare a worst-case release scenario analysis as provided in § 68.25 of this part and complete the five-year accident history as provided in § 68.42.

40 C.F.R. § 68.25 Worse-case release scenario analysis – EPA requested the Offsite Consequence Analysis- Worst Case scenarios for hydrogen chloride and vinyl chloride held in a covered process. SPP analyzed and reported a worse-case scenario for both chemicals in the RMP. SPP provided a Risk Management Plan Update 2024 document prepared by Providence Engineering and Environmental Group, LLC.

40 C.F.R. § 68.28(a) Alternative Worse-case Release Scenario Analysis – EPA requested the Offsite Consequence Analysis- Alternative release scenario for hydrogen chloride, chlorine, chloroform and ethylene. SPP provided a Risk Management Plan Update 2024 document prepared by Providence Engineering and Environmental Group, LLC.

40 C.F.R. § 68.30 Defining offsite impacts-population – SPP used the most current census bureau population data available in August 2024 at the time of the update.

40 C.F.R. § 68.33 Defining offsite impacts-environment – SPP did not have any environmental receptors within a distance to endpoint, as required by § 68.22.

40 C.F.R. § 68.36 Review and update – SPP submitted their offsite consequence analysis with its RMP submission on August 27, 2024. The next 5-year offsite consequence analysis submission is due on August 27, 2029.

40 C.F.R. § 68.39 Documentation – SPP provided a Risk Management Plan Update 2024 document prepared by Providence Engineering and Environmental Group, LLC. Page 24 of the RMP Update 2024 document, Section 3.1.1.2, has the Flammable substance Worst Case scenarios but fails to give a description of the vessel or pipeline chosen to determine the offsite consequence worst case release scenario for vinyl chloride **[AOC 1- 68.39(a)].**

40 C.F.R. § 68.42 Five-year accident history – SPP did not report any accidental releases in their RMP submission on August 27, 2024. However, failed to update the five- year accident history within 6 months when on site injuries occurred on January 20, 2024, in the CA-1 unit.

Subpart D – Program 3 Prevention Program

40 C.F.R. § 68.65 Process safety information (PSI) – SPP keeps a variety of technical documents used to help maintain safe operation of the processes. These documents address chemical properties and associated hazards, limits for key process parameters and specific chemical inventories, and equipment design basis/configuration information. Departments within the facility are assigned responsibility for maintaining and updating process safety information. Chemical-specific information, including exposure hazards and emergency response/exposure treatment considerations, is provided in safety data sheets (SDSs). In addition, the facility has documented safety-related limits for specific process parameters (e.g., temperature, level, composition) in the operation manuals. SPP ensures that the process is maintained within these limits by using process controls and monitoring instruments, operating procedures, and protective instrument systems (e.g., automated shutdown systems). SPP also maintains numerous technical documents that provide information about the design and construction of process equipment.

SPP is responsible for completing a compilation of written process safety information before conducting any process hazard analysis. SPP failed to ensure that the maximum intended inventory for SFIPSI01 was accurate as identified in the 2023 Compliance Audit (PVC PSI SPP 1014) **[AOC 2- 68.65(c)(1)(iii)]** and that atmospheric pressure relief valves discharge to a safe location **[AOC 3- 68.65(d)(2)].**

40 C.F.R. § 68.67 Process hazard analysis (PHA) – SPP has a comprehensive PHA program to help ensure that hazards associated with the various processes are identified and controlled. Within this program, the covered process is systematically examined to identify hazards and ensure that adequate controls are in place to manage those hazards. SPP primarily uses the HAZOP techniques to perform these evaluations. These analyses are conducted using a team who has operating, maintenance, experience, and engineering expertise. This team identifies and evaluates hazards of the process as well as

recommends accident prevention and/or mitigation measures when the team believes such measures are necessary. To help ensure that the process controls and/or process hazards do not deviate significantly from the original design safety features, SPP periodically updates and revalidates its process hazard analyses. These periodic reviews are conducted at least every five years and will be conducted at this frequency until the process is no longer operating. The results and recommendations from these updates are documented and retained.

SPP did not ensure that the PHA appropriately addressed the hazards and complexity of the process related to atmospheric pressure relief valves and facility siting **[AOC 4- 68.67(a)].** The PHAs do not address the hazard of hot process equipment **[AOC 5- 68.67(c)(1)],** shelter-in-place locations **[AOC 6- 68.67(c)(5)],** and resolution of PHA recommendations **[AOC 7- 68.67(e)].**

40 C.F.R. § 68.69 Operating procedures – SPP maintains written procedures that address various modes of process operations, such as unit startup, normal operations, temporary operations, emergency shutdown, normal shutdown, and initial startup of a new process. These procedures can be used as a reference by experienced operators and provide a basis for consistent training of new operators. Procedures are maintained current by revising them as necessary to reflect changes made to the process. In addition, the facility's operating procedures provide guidance on responding to events in which safe operating limits have been exceeded. The written operating procedures are readily available to operators to use as necessary to safely perform their job tasks.

EPA reviewed several operating procedures which included: initial startup, normal operations, temporary, emergency shutdown, emergency operations, normal shutdown, and startup following a turnaround. SPP's operating procedures for the Vinyl Chloride Monomer units did not contain the operating limits, consequences of deviation; and steps required to correct or avoid deviation, safety and health considerations, and safety systems and their functions. **[AOC 8- 68.69(a)].** SPP failed to annually certify operating procedures in the CA-3 and VCM-1 units **[AOC 9- 68.69(c)].**

40 C.F.R. § 68.71 Training – SPP has implemented a training program for all employees involved in operating a process. All operations employees receive basic training in the facility operations. After operators demonstrate (e.g., through tests, skills demonstration) having adequate knowledge to perform the duties and tasks in a safe manner on their own, they can work independently. In addition, all operators periodically receive refresher training on the operating procedures to ensure that their skills and knowledge are maintained at an acceptable level. As required per 40 CFR 68.71, this refresher training is conducted every three years or more often if determined to be necessary.

SPP provided EPA with their available training documentation and corresponding policy. This subpart requires each new employee to be trained in an overview of the process, the operating procedures and provide refresher training at least every three years. We randomly reviewed the training records of selected process operators. SPP was able to provide initial and refresher training records for multiple employees addressing an overview of the process, operating procedures, Hazwoper, first responder, and fire brigade training.

40 C.F.R. § 68.73 Mechanical integrity (MI) – SPP uses established practices and procedures to maintain pressure vessels, piping systems, relief and vent systems, controls, pumps and compressors, and emergency shutdown systems in a safe operating condition. The basic aspects of this program include: developing written procedures, performing and documenting inspections and tests, correcting identified deficiencies and applying quality assurance measures. Inspections and tests are completed to evaluate equipment functioning as compared to that intended, and to verify that equipment is within acceptable limits (e.g., adequate wall thickness for pressure vessels). If a deficiency is identified, the deficiency is corrected before placing the equipment back into service (if possible), or a management of change team will review the use of the equipment and determine what actions are necessary to ensure the safe operation of the equipment.

EPA reviewed the written procedures SPP established to maintain the ongoing integrity of the process equipment. The review was conducted both on site and in further detail after leaving the facility, post-inspection. EPA examined the inspections and tests performed on equipment to ensure that the frequency of inspections and tests of process equipment are consistent with applicable manufacturers' recommendations and recognized and generally accepted good engineering practices (RAGAGEP).

SPP did not ensure that external inspections and testing of pressure vessels, piping and relief valves were performed at the intervals specified in API 510 and Api 570. SPP failed to implement the deferral approval for extensions for inspection and testing of process equipment [**AOC 10- 68.73(d)(2)].**

40 C.F.R. § 68.75 Management of change (MOC) – SPP has a comprehensive system to manage changes to processes. This system requires that changes to items such as process equipment, chemicals, technology (including process operating conditions), procedures, and other facility changes be properly reviewed and authorized before being implemented. Changes are reviewed to ensure that adequate controls are in place to manage any new hazards and verify that existing controls have not been compromised by the change. Affected chemical hazard information, process technology information, and equipment information, as well as procedures are updated to incorporate these changes.

The management of pipe clamps at the facility was inconsistent as MOCs were not required for the installation of pipe clamps in the following units: CA-1, CA-2, VCM-1, and PEP **[AOC 11- 68.75(a)].** SPP did not ensure that the management of change process was implemented for modifications in operating procedures **[AOC 12- 68.75(b)(3) and 68.75(d)].**

40 C.F.R. § 68.77 Pre-startup safety review (PSSR) – SPP personnel conduct a pre-startup safety review for any new facility or facility modification that requires a change in the process safety information (not required for replacement in kind). The review ensures that safety features, procedures, personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. This review provides one additional check to make sure construction is in accordance with the design specifications and that all supporting systems are operationally ready. A review involves field verification of the construction and serves a quality assurance function.

EPA reviewed SPP's written PSSR procedures, as well as various PSSRs completed by the facility within the past 5 years and found no Areas of Concern.

40 C.F.R. § 68.79 Compliance Audits – To help ensure that the accident prevention program is functioning properly, SPP periodically conducts audits to confirm the procedures and practices required by the accident prevention program are being implemented. Compliance audits are conducted at least every three years.

EPA reviewed SPP's most recent compliance audits, conducted from 2020-2024. All compliance audits provided were conducted by at least one person knowledgeable in the process. Up until 2024, compliance audit findings were communicated to the individual units and SPP allowed each unit to establish their own tracking system for the audit findings. This resulted in various understanding and inconsistent interpretation regarding compliance with the RMP standard. SPP has since assigned audit findings to the Process Safety Management (PSM) department.

EPA reviewed the findings and recommendations to the compliance audits provided during the inspection. SPP failed to promptly determine and document an appropriate response to each of the findings and recommendations from the 2020 and 2023 PSM-RMP Audits; documenting that deficiencies have been corrected. The PSM-RMP Audit from 2020 has multiple open items with findings outlined in the audit that are not clearly tracked. The VCM 2020 PSM action tracker does not have completion dates or outline an appropriate response to each of the findings upon completion. The PEP 2021 audit has 5 open items and does not outline specific findings, rather, findings noted in the tracker derived from the notes section in the PEP 2021 audit. The PSM Audit from 2023 also has multiple open items. The action tracker for the PVC unit included items from both the 2020 and 2023 audit. **[AOC 13- (68.79)(d)] and [AOC 14- (68.79)(e)].**

40 C.F.R. § 68.81 Incident investigation – SPP is required to investigate each incident which resulted in, or could reasonably have resulted in, a catastrophic release of a regulated substance. SPP has an incident investigation procedure that requires investigation for an employee injury/accident, equipment failure, loss of product containment, fire, explosion, and in some cases, near misses. The facility uses IOXpress for all incident investigation reports to document and track detailed information about the incident. Facility representatives noted that initial incident investigation reports are generated and filed electronically in IOXpress within 48 hours of the incident, and incidents resulting in a fire, injury, or fatality (Level 4) undergo a formal root cause investigation led by the EH&S Manager. Appropriate investigation team members are determined based on the nature of the incident, such as a person knowledgeable in the process or a contract employee if the incident involved a contractor. SPP uses a root cause investigation methodology to identify probable causes, corrective actions or recommendations, and lessons learned. Recommendations are tracked on IOXpress and may lead to development of action items in other systems, such as MOCs, training assignments, SOP modifications, and generated Work Orders. However, documentation of a resolution for incidents involving contractors is not tracked in the IOXpress system. SPP allows the contractors to perform corrective actions but SPP does not record what was done for corrective actions **[AOC 15- 68.81(e)].**

40 C.F.R. § 68.83 Employee participation – SPP believes keeping employees informed and involved creates a team unity atmosphere. Employees participate on Process Hazards Analysis (PHA) teams and have access to all hazard and operability (HAZOP) information and recommendations. Operation manuals are developed, updated, and reviewed by Operations personnel and the Training Department. Safety meetings are held regularly for Operations, Maintenance, Terminal, Administration, and Contract personnel. Selected topics are relevant to respective personnel assigned duties, and general and specific information is provided as informational instruments to enhance employee participation in facility-wide safety performance. SPP provided EPA with their written employee participation plan.

40 C.F.R. § 68.85(b) Hot Work Permit – SPP's hot work procedure requires that detailed permitting takes place before, during, and after any job that has the potential to provide a source of ignition. The permit is followed through to completion of the work and those permits are maintained by the Unit Managers. The facility implements other work permits as necessary to assure safe work conditions are communicated to maintenance and contract personnel.

EPA reviewed hot work permits and the corresponding hot work policy, SLA-SAF-012.00-R07. The facility has developed and implemented a hot work safety procedure for any work that involves burning, welding, brazing, soldering, grinding and creating sparks in areas where flammable liquids or gases may be present. This procedure is applicable to all Shintech employees and contractors, and it outlines the responsibilities of the operations supervisor, process operator, and maintenance supervisor. The procedure delineates the different types of hot work permits, pre-requisites and procedures for conducting hot work, and duties of the fire watch which align with the fire prevention and protection requirements in 29 CFR 1910.252(a).

40 C.F.R. § 68.87 Contractors – SPP uses contractors to supplement its workforce as needed. The facility has procedures in place to ensure that contractors perform their work in a safe manner and are aware of the procedures to take during an emergency. This is accomplished by providing contractors with a process overview, information about safety and health hazards, emergency response plan requirements, and safe work practices.

SPP utilizes ISNetworld for the selection of contractors, who are required to go through a screening process, meeting the training credential qualifications outlined by the facility and receive a grade prior to selection. SPP conducts monthly meetings with all contractor safety and management personnel to discuss job status and any issues that need to be addressed. SPP utilizes a tracking spreadsheet to monitor and record contractor performance with lockout/tagout, PPE deficiencies and safety concerns as well as reports any contractor performance issues to ISNetworld. SPP also has on site shift safety supervisors who perform walk throughs of the job site. Shintech performs an evaluation of contractors more frequently than annual through ISNetworld.

Subpart E – Emergency Response

40 C.F.R. § 68.90 Applicability – SPP is a responding stationary source in case of an accidental release of a regulated substance.

40 C.F.R. § 68.93 Emergency response coordination activities – SPP coordinates response needs with local emergency planning and response organizations. SPP is a member of the local CAER committee, that also provides aid to other local facilities. Meetings with Iberville and West Baton Rouge Local Emergency Planning Committee (LEPC) are coordinated on an annual basis as required by 40 C.F.R. § 68.93(a).

40 C.F.R. § 68.95 Emergency Response Program – SPP maintains a written Emergency Response Plan (ERP), which aims to protect employees, public health, and the environment. The purpose of the ERP is to minimize potential adverse impacts on the facility and surrounding areas during an emergency situation. The plan consists of procedures for responding to emergencies such as fires, explosions, hazardous gas or liquid releases, natural disasters, and terrorist threats. The plan addresses all aspects of emergency response including coordination with mutual aid organizations, timely notification of authorities, maintenance of proper documentation, and guidelines for compliance with applicable government regulations. Furthermore, the facility has procedures that address proper use, maintenance, inspection, and testing of emergency response equipment.

EPA reviewed the ERP which included procedures and measures for emergency response after an accidental release of a regulated substance. SPP currently has on site three (3) mini-pumper fire trucks, five (5) fire water ponds made up from river water and storm water with a closed system to be able to discharge water to each pond, when necessary, a side by side with a quick attack set up, foam trailer with fire monitor and a portable fire monitor trailer for emergency response capability. SPP also utilizes spill response kits, SCBA's and fire hoses throughout the facility. SPP utilizes an audible horn system and emergency radio communications in the event of an emergency, which is tested weekly. SPP has an onsite training center utilized in training personnel in emergency response. The facility has trained approximately 250 operators and technicians as the Emergency Response Team so that each shift contains an operational team able to respond to situations. Contractors inspect and maintain a majority of the response equipment annually, while the facility also provides monthly inspections of all equipment.

During the file review of the annual deluge system inspections from 2022-2024, EPA noted multiple recurring deficiencies on the same equipment **[AOC 16-68.95(a)(2)].**

Subpart G – Risk Management Plan

40 C.F.R. § 68.150 Submission – SPP submitted their 5-year update to their RMP on August 27, 2024. The re-submission was within the 5-year timeframe as required by 40 C.F.R. § 68.150.

40 C.F.R. § 68.160 Registration – SPP included in their RMP all regulated substances present at the site above their designate threshold quantity as required by 40 C.F.R. § 68.160.

40 C.F.R. § 68.190 Updates – SPP's RMP submittal was on August 27, 2024, and the previous submittal for this facility was on October 3, 2022.

40 C.F.R. § 68.195 Required Corrections– Corrections to the RMP are required for any accidental release meeting the 5-year accident history reporting criteria of §68.42. The owner shall submit the data required under §§ 68.168, 68.170(j), and 68.175(l) with respect to that accident within six months of the release. SPP failed to provide a correction to the RMP for an accidental release that occurred on January 20, 2024, which met the 5-year accident history reporting criteria of §68.42 **[AOC 17- 68.195(a) & 68.42].** The facility originally did not consider the incident to meet the reporting criteria due chlorine molecules being freed from the inadvertent mixing of hypochlorite and spent sulfuric acid in a tank that is not directly a part of the chlorine processing unit. However, the incident occurred at an RMP covered facility, in a covered process and released a chemical covered by the RMP rule.

The accidental release of hazardous chemicals goes beyond just RMP regulated chemicals as is noted in the definition of accidental release within the rule.

§ 68.3 Definitions. For the purposes of this part:

Accidental release means an unanticipated emission of a regulated substance ***or other extremely hazardous substance*** *into the ambient air from a stationary source.*

SECTION III - AREAS OF CONCERN

AOC 1 - 40 C.F.R. § 68.39(a) Documentation

§ 68.39 The owner or operator shall maintain the following records on the offsite consequence analyses: (a) For worst-case scenarios, a description of the vessel or pipeline and substance selected as worst case, assumptions and parameters used, and the rationale for selection; assumptions shall include use of any administrative controls and any passive mitigation that were assumed to limit the quantity that could be released. Documentation shall include the anticipated effect of the controls and mitigation on the release quantity and rate.

SPP failed to include a description of the vessel or pipeline chosen to determine the offsite consequence analysis for the flammable substance worst case scenario in the RMP.

AOC 2 - 40 C.F.R. §68.65(d)(2) Process Safety Information

The owner or operator shall document that equipment complies with recognized and generally accepted good engineering practices.

SPP failed to evaluate and control the hazards related to pressure relief devices (PRV) to ensure that they discharge to a safe location. Hundreds of atmospheric pressure relief valves can discharge chemicals (e.g., chlorine, hydrogen chloride, ethylene, or vinyl chloride monomer) to the ambient

environment. These toxic and flammable chemicals would also pose a hazard to employees working on nearby ladders and platforms and throughout the facility. There is no documentation in place to confirm that these PRVs vent to a safe location; in accordance with API 521 Section 5.8 and CCPS Guidelines for Pressure Relief and Effluent Handling Systems.

AOC 3 - 40 C.F.R. §68.67(a) Process Hazard Analysis

The owner or operator shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this part. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process.

1. The process hazard analysis was not appropriate for the complexity of the process as it has not evaluated and controlled the hazards associated with pressure vessels, such as but not limited to (e.g., VCM Stripper Column, VCM Column, HCl Column, Drying Column, Lights Column, Hi-Boil Column, Vacuum Column, EDC Purification Towers, Chlorination Reactors, Iron Removal Vessels, VCM Product Storage Tanks, HAPF furnace, VCM Storage Spheres) with atmospheric pressure relief devices. Atmospheric discharge from pressure relief valves, when functioning as designed, will release flammable and toxic chemicals such as chlorine, hydrogen chloride (HCl), ethylene dichloride, and vinyl chloride monomer to the ambient environment.

2. The process hazard analysis was not appropriate for the complexity of the process as it has not evaluated, and controlled the hazards involved in the accidental atmospheric release of flammable and toxic chemicals such as chlorine, hydrogen chloride, ethylene dichloride, vinyl chloride monomer/and potential combustion products hydrochloric acid and phosgene. SPP failed to identify and designate in their emergency action and response plan buildings that are suitable shelter-in place (SIP)/safe haven locations in the event of an accidental release of lethally toxic chemicals. The emergency action and response plan includes muster stations but does not identify shelter-in-place buildings. The 2018 facility siting study, as part of the analysis, did not include a toxics evaluation of buildings potentially suitable for SIPs.

> ** Vinyl chloride is a colorless gas with a mild or sweet odor. It is flammable and burns easily. The combustion products from chlorinated hydrocarbons are of considerable importance from a toxicological standpoint. This class of organic compounds, when burned or thermally degraded in an oxidizing atmosphere, can produce carbon monoxide, hydrogen chloride, and phosgene. The gross quantity of hydrogen chloride is a major hazard in a VCM fire. The release of phosgene and hydrogen chloride can pose significant risks to public health and safety.*

AOC 4 - 40 C.F.R. §68.67(c)(1) Process Hazard Analysis

The process hazard analysis shall address the hazards of the process.

SPP failed to address and resolve a 2020 SSP Compliance Audit, finding VCM-PHA1 1.011 – “PHA does not address hot process equipment” related to two employee injuries contacting hot process equipment.

AOC 5 - 40 C.F.R. §68.67(c)(5) Process Hazard Analysis

The process hazard analysis shall address stationary source siting.

1. The facility siting study was not appropriate for the complexity of the process as it has not evaluated and controlled the hazards in the VC units posed by atmospheric release of flammable and toxic chemicals such as chlorine, hydrogen chloride (HCl), ethylene dichloride, and vinyl chloride monomer.

The facility siting studies and the PHAs did not the evaluate the hazards resulting chemical releases from approximately 100+ atmospheric pressure relief valves functioning as designed or not functioning as designed.

2. The Chlor-Alkali 3, 2020 process hazard analysis does not address stationary source facility siting. The process hazard analysis worksheet addresses facility siting by stating that the "plant is still in the construction stage". This statement does not appropriately identify, evaluate and control the potential hazards related to stationary source siting.

3. The Chlor-Alkali 2, 2021 process hazard analysis does not address stationary source facility siting. The process hazard analysis contains a blank facility siting checklist. This does not appropriately identify, evaluate and control the potential hazards related to stationary source siting.

4. The December 2018 Plaquemine Plant 3 Expansion Facility Siting Study results "shows vulnerability" for employees during evacuation, to lethal outdoor concentrations of ethyl dichloride, hydrogen chloride, and chlorine. Toxic mitigation options include providing effective shelter-in-place locations, allowing for safe evacuation through toxic gas detection and proper protective equipment, or a combination of both approaches."

SPP failed to ensure that shelter-in-place buildings are available onsite and located to provide a safe-haven during an accidental release of toxic chemicals. The study takes credit for SIP buildings; however, no such SIPs exist in the emergency action and emergency response plans or at the site. Toxic risk can be effectively mitigated by establishing/designing effective shelter-in-place (SIP) locations.

AOC 6 - 40 C.F.R. §68.67(e) Process Hazard Analysis

The owner or operator shall establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.

1. SPP failed to establish a system to promptly address the team's findings and recommendations from the 2020 revalidation PHA. SPP has not documented what actions were to be taken; develop a written schedule of when these actions were to be completed; assured that the recommendations were resolved in a timely manner and that the resolution was documented; and did not complete the necessary actions as soon as possible.

i. 200 Area Action Items Node 2 and 3, Composition – The team identified that oxygen may come into contact with hydrogen during a maintenance activity involving inspection of the check valve by removal of the check valve located on the hydrogen supply piping to MRE-201 or MRE-202 causing a possible flash fire with potential to burn employees. Recommend replacing current carbon steel check valves with a 16 Hastelloy check valves to prevent corrosion that may cause the check valves to malfunction requiring inspection or repair.

ii. 300 Area Action Items
Node 23, No Flow – The team identified that if a Furnace Quench Bottoms Pump trips, flow will be lost to the quench spray nozzles resulting in possible erosion and pipe failure. Recommend management to evaluate alternative control logic.

Node 25, No Level – The team identified that if L-324, Quench Overhead Drum level controller, malfunctions high flow will be lost to the quench spray nozzles resulting in possible erosion and pipe failure. Recommend management to evaluate alternative control logic.

iii. The PHA team findings and recommendations identified in 100/200/300 Area in VCM1 or VCM2 the regarding the following control valves has not been implemented.
PCV-103 – fails closed/fails in position
PCV-201 – fails open
PCV-202 – fails closed
PCV-203 – fails closed
PCV-355 –fails closed/fails in position
PCV-352 –fails closed

iv. The following PHA items were categorized as positive impact but had no risk rank or recommendations:
SPP2MM19-047
2.1. Added a LT and SV on H2 Compressor Suction Snubber
2.1.1. Positive impact-Prevents wet hydrogen may being fed to 2MDY-201 and HCL line for OXY or hydrogen may come out to atmosphere via drain line and ignite

Drain on S2/S18 Generator piping to atmosphere 25.1. VCM3 installed one inch drain downstream of HCV-311/325 to atmosphere.
25.1.1. Positive impact-Prevents accumulation of condensate downstream of HCV's, which prevents employees from being burned by condensate.

SPP2-MM19-036 28.1. Modify SAVs to resolve deficiencies identified by engineering study. This MOC covers only the 28.1.1.
Positive impact-Replaced SAV's to size required for relief scenario; following SAV replacement and/or its associated piping modification which will be performed during SAV-301, SAV-302, SAV-303, SAV-351A/B

v. The following PHA items involving chemical release to atmosphere were risk ranked but had no recommendations:
PCV-416 Drying Column pressure control to WVH. 2.1. Fails closed 2.1.1. High pressure causing over pressure of the column resulting possible relieving of SAV.

CV-693A/B EMERGENCY BLOW DOWN TANK TO VCGN HEADER 1.1. Fails open 1.1.1. High vent flow to VCGN header causing possible GTO shutdown resulting in plant upset and chemical release to atmosphere.

3MFCV-933 VCL TO PVC SPHERES
1.1. Fail closed in level control 1.1.1. High level resulting in possible release of VCM to atmosphere.
1.3. Fail in position 1.3.1. Loss of ability to control level resulting in possible high level and release of VCM to atmosphere.

3MFCV-955 VCL FROM VCM3
2.3. Fail in position 2.3.1. Loss of ability to control level resulting in possible high level and release of VCM to atmosphere.

2. SPP failed to establish a system to promptly address the findings and recommendation of the Shintech Plaquemine Plant 3 Expansion facility siting studies. SPP failed to document what actions were to be taken; develop a written schedule of when these actions are to be completed; complete actions as soon as possible; assure that the recommendations are resolved in a timely manner and that the resolution is documented. SPP also failed to assure that the actions are communicated to operating, maintenance and other employees whose work assignments are in the process and who may be affected by the recommendations or actions.

i. December 2018 Facility Siting Study:
Clouds of flammable vapors above the LFL are predicted to reach 8 of the 15 buildings that were modeled, and 9 buildings are vulnerable to fire events that are predicted to cause severe vulnerability during evacuation, as shown in Table ES-1.
Results of the study show vulnerability during evacuation to lethal outdoor concentrations of ethyl dichloride, hydrogen chloride, and chlorine, as shown in Table ES-1.
The explosion analysis indicates that all of the assessed occupied buildings (A902, A903, G801, G802, G803, and M803) are predicted to be vulnerable to catastrophic building damage (BDL 4) from full-bore releases.

Toxic materials modeled in this study, along with the toxic concentrations that result in a 1%, 10%, and 90% lethality over a 10-minute exposure for ethylene dichloride, chlorine and hydrochloric acid.

ii. March 2020 Quantitative Risk Assessment Study:
The results show that M803 and G801 occupants incur the greatest risk, primarily from toxic and explosion hazards.

The societal risk results indicate that the total onsite risk posed by operation of the facility is significant (above green line), but not excessive (below red line) and toxic hazards pose 59% of the risk.

*The air infiltration rate and HVAC isolation reliability for toxic SIPs have been credited as very good shelters **per Shintech**; however, they should be tested/validated to confirm toxic risk predictions.*

iii. May 2022 Risk-Based Facility Siting Revalidation Study (finalized November 2024):
Identified three buildings where there was a significant toxic and explosion hazard risk to building occupants: M803 Mechanical Warehouse, G802 Maintenance Building, and G801 Control Room. Toxic and explosion hazards are the primary risk drivers for the three buildings.

3. Shintech failed to establish a system to promptly address the team's findings and recommendations for the 2023 MH PHA by not developing a written schedule (target due date) of when actions were to be completed or not ; completing recommendations by their target due date.

i. In the 2023 PSM Audit Action list a target due date was not established for the following PHA recommendations items 2, 4, 7, and 11-19.

ii. The following PHA recommendations items were not completed by their due date: 1,5, and 6.

4. Shintech failed to establish a system to provide justification and documentation to address why PHA findings and recommendations were not accepted and why this justification has not been communicated to operating and other employees whose work assignments are in the process and who may be affected by the recommendations or actions. Justification for not accepting recommendations is not appropriate for the following PHA recommendations.

2017 PHA CA-1:
Only 3 of the 150+ PHA recommendations were accepted with no appropriate justification

2022 PHA CA-1 2022:
-Node 2 Potential for chlorine gas to release to atmosphere via AFL-201X inside the cell house. Consider adding an ASV in line- Process issue only, no change necessary
Justification for not accepting recommendations is not appropriate

-Node 14 Consider PMing of hydrogen monitors
-Node 14 Exchanger, AHE-221X, AHE-222 blocked in liquid full.
Potential for blocked in liquid to heat up and damage equipment due to thermal expansion.
Consider installing a pressure relieve device.
Justification for not accepting recommendations is not appropriate

January 2021 PHA VCM Normal Operation
Area 500 *HAPF Unit Back End Stripper and HCL Compressors*
2.1.1.1 Risk acceptable to management-
Justification for not accepting recommendations is not appropriate.

January 2021 VCM Normal Operation-400 Area
-Drying Column (MCL-401) EDC Storage Tanks (MTK-491/492493/494/495/2MTK-921/922)
Risk acceptable to management
-FCV-427 Chlorine flow control to Chlorine Reactors-Risk acceptable to management
-FCV-483 2.1.1.2.1 and 2.1.1.3.1
Blower Discharge flow to MCM-492 -Risk acceptable to management
2PCV-924-3 minimum flow
2MPU-921A/B 1.1.1.1.1, 1.1.1.2.1, 1.1.1.3.1, 1.1.2.1.1 -Risk acceptable to management
Justification for not accepting recommendations is not appropriate

2021 February PHA Global Utility-600 Area
1.1.1.1. Consider installing a secondary pressure control valve in parallel with PCV-661 to reduce consequences as a result of pressure control valve fail closed event.
Risk acceptable to management.
Justification for not accepting recommendations is not appropriate

AOC 7 - 40 C.F.R. §68.69(a) Operating Procedures

The owner or operator shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address operating limits (consequences of deviation; and steps required to correct or avoid deviation), safety and health considerations, and safety systems and their functions.

1. SPP did not ensure that the following operating procedures for the Vinyl Chloride Monomer units contained the operating limits, consequences of deviation; and steps required to correct or avoid deviation, safety and health considerations, and safety systems and their functions:

Vinyl Chloride:
Emergency Cracking Furnace Tube Leak
Emergency Loss of Electricity
Emergency Wet Crude EDC
Tank (MTK-492) High Pressure
Shutdown MCL-306 VCM Column
Startup MCL-306
Shutdown MCL-405 Clean-up Column
Startup MCL-405

Shutdown MCL-631/632 WW Stripper
Startup MCL-631/632

2. SPP failed to ensure that the 2020 SSP Compliance Audit, finding CA PSI 1.009 –*"Identify hazards of chlorine reactions in operating procedures"* had been completed as no completion date exists.

AOC 8 - 40 C.F.R. §68.69(c) Operating Procedures

The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to stationary sources. The owner or operator shall certify annually that these operating procedures are current and accurate.

1. SPP failed to certify annually that the operating procedures are current and accurate; as multiple operating procedures were certified late, and past the annual due date. SPP provided annual certification review forms for all units. The following operating procedures were certified late:

Operating Procedure	**Date of Late Certification**
VCM1- Area 100	3/9/2023 (Due 6/14/2022)
VCM1-Area 200	3/8/2023 (Due 6/16/2022)
VCM1-Area 300	3/9/2023 (Due 6/16/2022)
VCM1-Area 400	2/13/2023 (Due 6/14/2022)
VCM1-Area 500	3/8/2023 (Due 6/14/2022)
VCM1-Area 550 GTO	2/13/2023 (Due 6/14/2022)
VCM1-Area 600	3/9/2023 (Due 6/16/2022)
VCM1-Area 700	2/9/2023 (Due 6/14/2022)
VCM1-Area 900	2/13/2023 (Due 6/14/2022)
VCM1-Utilities Area	2/9/2023 (Due 6/14/2022)

2. SPP commissioned the CA-3 unit online on September 16, 2021. However, they did not provide documentation indicating operating procedures for the CA3 unit were annually certified for the year 2022.

AOC 9 - 40 C.F.R. §68.73(d)(2) Inspection and testing.

***Inspection and testing procedures shall follow recognized and generally accepted good engineering practices*.**

1. SPP failed to perform external inspections or ultrasonic testing at five-year intervals on piping circuits EDC-3085-2-C01A and VC-3089-2-C01A in accordance with API 570 Section 6.3.

2. SPP failed to implement the deferral approval process for external inspections of piping which could not be completed within a 5-year interval as specified in API 570 7.13/7.13.1. The following piping circuits were overdue for external inspection; and were operated beyond their due date without a valid deferral which is not permitted by this code:

Piping Circuits External Inspection <6-months late

Piping Circuit	Last Inspection	Next Inspection Due Date	Inspection Performed
Cl-1001-10-F03G	3/28/2017	3/28/2022	8/24/2022
Cl-1001-16-F03G	3/28/2017	3/28/2022	8/24/2022
VC-3039-3-C01A	5/18/2017	5/18/2022	9/7/2022

Piping Circuits External Inspection >6-months late

Piping Circuit	Last Inspection	Next Inspection Due Date	Inspection Performed
HCL-3017-10-F02L-C3	6/28/2017	6/28/2022	4/11/2023
MC-3177-6-C01A	7/27/2017	7/27/2022	2/23/2023
VC-3001-20-C01A	10/22/2014	10/22/2019	5/25/2021
HCL-3017-10-F02L-C3	6/28/2017	6/28/2022	4/11/2023
VC-3005-8-C01A	9/27/2017	9/27/2022	5/02/2023
VC-3046-3-C01A	9/27/2017	9/27/2022	5/02/2023

3. SPP failed to implement the deferral approval process for external inspection of pressure which could not be completed within a 5-year interval in accordance with API 510 2014 (Addendum 1, May 2017 Addendum 2, March 2018), Sections 6.7/6.7.1 and API 510 2022 Sections 6.7.1/6.7.2; The following pressure vessels were overdue for external inspection; and were operated beyond their due date without a valid deferral which is not permitted by this code:

Pressure Vessel External Inspection <6-months late

Pressure Vessel	Last Inspection	Next Inspection Due Date	Inspection Performed
MTK 931-C	2/9/2018	2/9/2023	8/1/2023
MTK 931-D	2/2/2018	2/2/2018	8/1/2023
PTK 1901-A	5/14/2019	5/14/2024	10/22/2024
MCL-302	9/21/2017	9/21/2022	1/25/2023

Pressure Vessel External Inspection >6-months late

Pressure Vessel	Inspection	Next Inspection Due Date	Inspection Performed
PTK 1901-B	11/18/2013	5/14/2024	5/6/2021
MCL-306	8/23/2018	8/23/2023	4/4/2024
MCL-307	8/26/2018	8/26/2023	3/14/2024
MHE-322A	10/17/2017	10/17/2022	9/27/2023
MHE-324B	10/27/2017	10/27/2022	8/14/2024

4. SPP failed to perform inspections and tests at five-year intervals in accordance with API 510 Section 6.6.3.2:

The following pressure safety valves which were last tested in 2018

i. MCL-307 SAV-382A
ii. MTK-315 SAV-389
iii. MTK-402 SAV-413A/B/C/D/E/F

The following pressure safety valves were not tested prior to 12/2024

iv. MHE-322-A SAV-362-A
v. MTK-693-A SAV-693-A

The following pressure safety valves were not tested within a five-year interval

Pressure Safety Valve	Last Inspection	Next Inspection Due Date	Inspection Performed
vi. MCL-302			
SAV 331A	10/27/2018	10/27/2023	5/21/2024
SAV 331B	11/13/2016	11/13/2021	2/23/2022
vii. MCL-305			
SAV 363A	11/6/2018	11/6/2023	5/10/2024
SAV 363B	10/9/2015	10/9/2020	3/7/2022
viii. MCL-307			
SAV-382B	10/16/2015	10/16/2020	3/7/2022
ix. MCL-306			
SAV 373A	11/8/2018	11/8/2023	5/10/2024
x. MHE-324-B			
SAV-372-B	10/5/2015	10/5/2020	3/7/2022
xi. MRE-101			
SAV-101-A	11/2/2018	11/2/2023	6/11/2024
SAV-101B	10/4/2015	10/4/2020	3/8/2022

***API 510**
6.6.3 Testing and Inspection Intervals

***6.6.3.1** Pressure-relieving devices shall be tested and inspected at intervals that are frequent enough to verify that the devices perform reliably in the particular service conditions. Other pressure-relieving devices (e.g. rupture disks, and vacuum-breaker valves) shall be inspected at intervals based on service conditions. The inspection interval for all pressure-relieving devices is determined by either the inspector, engineer, or other qualified individual per the owner/user's QA system.*

***6.6.3.2** Unless documented experience and/or a RBI assessment indicates that a longer interval is acceptable, test and inspection intervals for pressure-relieving devices in typical process services should not exceed 5 years for typical process services, and 10 years for clean (non-fouling) and noncorrosive services.*

AOC 10 - 40 C.F.R. §68.75(a) Management of Change

The owner or operator shall establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures; and, changes to stationary sources that affect a covered process.

SPP failed to implement written procedures to manage changes to process equipment. SPP did not implement procedure "Temporary Repair Policy/Procedure" (SLA-MAINT-TR001-R02) Section 5 that govern the installation and removal of pipe clamps and requires "Operations" to perform the following:

-Create Temporary MOC after the temporary repair review/assessment is complete. This MOC will be used to track the installation and removal of the temporary repair as well as ensure that all steps of this policy/procedure are completed.

-The Temporary Repair Plan Form will be used to ensure the temporary repair is suitable for the service/equipment that it is being applied to.
- The end date of the MOC and the target date of removal for the temporary repair shall not exceed the next scheduled plant turnaround.

The management of the installation of the following pipe clamps was inconsistent with the requirements of the Shintech procedure and the RMP MOC standard:

1. VCM -1 No MOC prepared
EDC4330, EDC4159, RP3011, Vent 458, EDC4158, LE4018, EDC-MTK737,
EDC1040 piping south of C Oxy at road crossing

2. VCM-2 MOC not completed by the end date which was 2023 turnaround
SC6034, EDC6115, EDC7001, S15-6007, SC6108, SC6115, SC6036, EDC1028, EDC1009

3. PEP No MOC prepared
IA79066, S40-ETB-341-0005 (East Side), RP35082, S40-ETB-341-0005 (West Side), P42003, P42075, S120/S40 ETB-301-0001, S40 ETB-341-0005, P-11415, SC4-62087, P30083

4. CA1 No MOC prepared
CL-SPPCA-2024-17; CL-SPPCA1-2024-21; CL-SPPCA1-2024-23;
CL-SPPCA1-2024-24; CL-SPPCA-2024-29

5. CA2 2024-2 No MOC prepared
Bleed valve on discharge 2 ACM-411C Failure to complete temporary MOC by the end date 9/11/2024

AOC 11 - 40 C.F.R. §68.75 Management of Change

§68.75(b)(3) The procedures shall assure that the following considerations are addressed prior to any modifications to operating procedures, and;

§68.75(e) If a change covered by this paragraph results in a change in the operating procedures or practices required by §68.69, such procedures or practices shall be updated accordingly.

SPP did not ensure that the management of change process was implemented for modifications in the following operating procedures:

Chlor-Alkali

200 Area Connection to Live Gas Header	-4 revisions
200 Area Electrolyzer Leak Test and Purge	-4 revisions
General Area Emergency Operations backed Equipment Startup Sequence	-3 revisions
Emergency Loss of Electricity	-2 versions

AOC 12- 40 C.F.R. §68.79(d) Compliance Audits

***The owner or operator shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected*.**

1. SPP failed to document the completion of Shintech 2020 SSP Compliance Audit Site Finding 1.004 which was to – "review action items from previous audits, document status and resolve any recommendations". This RMP inspection discovered numerous compliance audit findings that were not addressed and not completed as indicated below.

2. The following compliance audit findings identified in the Shintech 2020 SSP Compliance Audit were not documented as completed; indicating the finding was still open:

i. Site MI 1.001 Finding- Administrative completeness, action items and filing process are in need of review. Review process for effectiveness.

ii. Site MI 1.016 Finding - The path of deficiency management should be reviewed and updated as needed. The PSM standard has specific requirements for deficiency programs. In regard to action items a process to monitor and track action item should be in place and the inspection process should not be closed until the action items are in action item management process.

iii. CA PSI 1.009 Finding **-**Identify hazards of chlorine reactions in operating procedures.

iv. CA PSI 1.021 Finding-Resolve or explain material of construction differences for 2AC-406-CL2-Drying Column.

v. **VCM-PHA1 1.011** Finding- PHA does not address hot process equipment. Note: Two employee injuries related to hot process equipment contact.

vi. VCM1-1 1.010 Corrective Action Summary Section of report form SLA-SAF-021.03-R00-V01 is not complete (blank). In addition corrective actions are not entered in the site incident database.

vii. PVCS 1.001 DCS Update - Distributed Control System (DCS) upgrade. New temperature element added to PTK-1352, Alarm setting change request form was not completed. Also, settings for LS-3519 was set with a new interlock. Neither change has an Alarm Setting change Request Form Completed. PDD30025 is not updated to reflect changes.

3. The following compliance audit findings identified in the Shintech Combined 2023 Compliance Audit were not documented as completed; indicating the finding was still open:

i. Site Inc. 1008 Finding-Review SLA-SAF-021.003 Incident Report Form and revise as necessary and Review SAL-SAF-021.00-R07 Incident Response and Investigation Program to determine if the referenced incident report form is an active document. It currently shows active in the manual.

ii. PVC PHA 1001 Finding-Develop management system for PHA recommendations and employee communication.

iii. CA PSI 1014 Finding-Making Chlorine Design Document 3/19/2019 a control document. This will put it in the document management system for periodic update.

iv. CAP 01 10016 Finding-Annually certify applicable site safety procedures are current and accurate. This should only apply to PSM applicable procedure as defined 1910.119(f)(4).

v. Site HW 1008 Hot work program does not address prohibited areas which was also previously identified as a finding in the 2020 compliance audit.

4. SPP failed to ensure that the maximum intended inventory for SFIPSI01 was accurate as identified in the 2023 compliance audit (PVC PSI SPP 1014).

AOC 13- 40 C.F.R. §68.79(e) Compliance Audits

The owner or operator shall retain the two (2) most recent compliance audit reports.

SPP failed to retain the two (2) most recent compliance audit reports. The Shintech Combined 2023 Compliance Audit (MH CA 1001) states that the last MH Compliance Audit was not available for review.

AOC 14- 40 C.F.R. §68.81(e) Incident Investigations

§ 68.81(e) The owner or operator shall establish a system to promptly address and resolve the incident report findings and recommendations. Resolutions and corrective actions shall be documented.

SPP personnel will promptly investigate all incidents that result in, or reasonably could result in, a fire/explosion, toxic gas release, major property damage, environmental loss, or personal injury. The goal of each investigation is to determine the facts and develop corrective actions to prevent a recurrence of the incident or a similar incident. Incident investigation reports will be retained for at least five years so that the reports can be reviewed during future PHAs and PHA revalidations.

SPP failed to establish a system to promptly address and resolve the incident report findings and recommendations for incidents involving a contractor. During the inspection, it was verbally stated that SPP allows the contractor to perform corrective actions, but SPP does not record what was done for corrective actions by the contractor in their internal system.

AOC 15- 40 C.F.R. §68.95(a)(2) Emergency Response Program

§ 68.95(a) The owner or operator shall develop and implement an emergency response program for the purpose of protecting public health and the environment. Such program shall include the following elements: (2) Procedures for the use of emergency response equipment and for its inspection, testing, and maintenance.

SPP failed to maintain the fire deluge system appropriately. EPA noted multiple reoccurring deficiencies noted in the annual inspections performed from 2022-2024. Deficiencies such as but not limited to :

- DV-P05 valve in the PVC unit noted with deficiencies of “pilot air pressure outside the manufacturers listed acceptable range for function of automatic deluge valve” in the 2022, 2023 & 2024 annual inspections.
- DV-P12-PCM-1351E/F & elevated tank near PTK-1352 in the PVC unit noted with deficiencies of “pilot air pressure outside manufacturers listed acceptable range for function of automatic deluge valve” in the 2023 & 2024 annual inspections.
- DV-P02, DV-P03, DV-P04, DV-P05, DV-P06, DV-P07, DV-P08, DV-P09, DV-P13 & DV-P14 noted with deficiencies of “pilot air pressure is outside manufacturers listed acceptable range for function of automatic dry valve in the 2022, 2023 & 2024 annual inspections.
- DV-P10 noted with deficiencies of multiple blowouts and need for repairs on both sides of the tower in the 2023 & 2024 annual inspections.
- DV-P11 noted with deficiencies of “low air pressure switch did not report when tested” in 2023 & 2024 annual inspections. Repairs were made in 2023. The 2022 annual inspection noted “the system failed to deliver water during trip test, cannot guarantee system will release water if fire activated a sprinkler head in building”
- DV-P12 noted with deficiencies of low pressure and water flow pressure switches not reporting to panel when tested in the 2022, 2023 & 2024 annual inspections.
- South Tank Farm Pump House noted with deficiencies of “low air, water flow and tamper switch not wired” in the 2022, 2023 & 2024 annual inspections.
- DV-91 noted with deficiencies of “sprung gauges” in the 2023 & 2024 annual inspections.
- DV-94 noted with deficiencies of “clogged nozzles observed during flow test, this location has clogged in the past, clogged nozzles over MST-931C&D VCM product strainer, water flow pressure switch did not report when tested” in the 2022, 2023 & 2024 annual inspections.
- DV-95 noted with deficiencies of “clogged nozzles” in the 2022, 2023 & 2024 annual inspections.

AOC 16 - 40 C.F.R §68.195(a) Required corrections.

§ 68.195(a) The owner or operator of a stationary source for which a RMP was submitted shall correct the RMP for any accidental release meeting the five-year accident history reporting criteria of §68.42 and occurring after April 9, 2004, the owner or operator shall submit the data required under §§ 68.168, 68.170(j), and 68.175(l) with respect to that accident within six months of the release or by the time the RMP is updated under § 68.190, whichever is earlier.

§ 68.42(a) Five-year accident history.
The owner or operator shall include in the five-year accident history all accidental releases from covered processes that resulted in deaths, injuries, or significant property damage on site, or known offsite deaths, injuries, evacuations, sheltering in place, property damage, or environmental damage.

§ 68.168 Five-year accident history.
The owner or operator shall submit in the RMP the information provided in § 68.42(b) on each accident covered by § 68.42(a).

SPP failed to provide a correction to the RMP for an accidental release that occurred on January 20, 2024, which met the 5-year accident history reporting criteria of §68.42; within six months of the release or by the time the RMP is updated under § 68.190, whichever is earlier.

January 20, 2024 an incident occurred in the CA1 unit due to a misaligned valve which prevented a mix of sodium hydroxide and sodium hypochlorite from following its intended path. The incident resulted in a Chlorine exposure to three contract employees. Chlorine molecules were freed from the inadvertent mixing of Hypochlorite and Spent Sulfuric Acid in a tank that is not directly a part of the Chlorine processing Unit. Due to the incident occurring at an RMP covered facility, in a covered process and released an RMP covered chemical, EPA identifies this release as meeting the reporting criteria of §68.42.

Section IV – FOLLOW UP

I requested supplemental documentation be downloaded to the EPA designated SharePoint site for review in which the facility did provide.

The Clean Air Act 42 U.S.C. Section 114(a)(2)(A) / Clean Air Act 42 U.S.C. Section 114(a)(2)(B)" CAA 42 U.S.C. Section 114(a)(2)(A) grants a representative authorized by the Administrator, upon presentation of credentials, the right of entry to, upon, or through any premises of such person on in which any records required to be maintained are located. Under CAA U.S.C. Section 114(a)(2)(B) the authorized representative may at reasonable times have access to and copy any records, inspect any equipment or method and sample any emission required to be sampled under CAA 42 U.S.C 7414(a)(1)."

Section V – LIST OF APPENDICES

The Appendices are not included in the online published inspection report. CBI Appendices include documents that are claimed CBI by the facility. Sensitive Appendices may include appendices that will not be posted but are not explicitly CBI. These could include Personally Identifiable Information (PII) or Homeland Security sensitive information.

Attachment 1—Opening and closing conference sign-in sheets