

Region 6 - Enforcement & Compliance Assurance Division
INSPECTION REPORT

Inspection Date(s):	February 13–16, 2024	
Media Program:	Air	
Regulatory Program(s)	Clean Air Act Section 112(r) and 40 Code of Federal Regulations (C.F.R.) Part 68 Chemical Accident Prevention Provisions – Risk Management Program (RMP)	
Company Name:	W.R. Grace & Co.-Conn.	
Facility Name:	Grace Pasadena	
Facility Physical Location:	10001 Chemical Road	
(city, state, zip code)	Pasadena, Texas 77507	
Mailing address:	10001 Chemical Road	
(city, state, zip code)	Pasadena, Texas 77507	
County/Parish:	Harris County	
Facility Phone Number	281-842-5260	
	David.fontaine@grace.com	
RMP ID:	1000 0013 0164	
Identification/Permit Number:	Air Operating Permit ID: O – 1473	
FRS:	110070735157	
NAICS:	32518 – Other Basic Inorganic Chemical Manufacturing	
Personnel participating in inspection:		
Charese Simpson	EPA Region 6	Lead Inspector
Julia Torres	EPA Region 6	Inspector
David Theiler	Grace Pasadena Catalyst	Environmental Health and Safety Manager
David Fontaine	Grace Pasadena Catalyst	Sr. EHS Specialist
Uwe Klingler	Grace Pasadena Catalyst	Plant Manager
Keith Meyer	Grace Pasadena Catalyst	EHS Specialist
Madhav Jadhav	Grace Pasadena Catalyst	PSM Engineer
Raul Ayala	Grace Pasadena Catalyst	Process Technology Manager
Robin Turner	Grace Pasadena Catalyst	Maintenance Eng. Manager
Bill Erickson	Grace Pasadena Catalyst	Ops. Lead
Jon Holmgren	Grace Pasadena Catalyst	Corporate Process Safety
Ashlee Green	Grace Pasadena Catalyst	Sr. Environmental Manager
Terry Phillips	Grace Pasadena Catalyst	Ops. Manager
Pete Volpe	Grace Pasadena Catalyst	Production Engineer Manager
Jim Nelson	Grace Pasadena Catalyst	Ops. Development Coord.
Daniel Lorenzana	Grace Pasadena Catalyst	Quality Manager
EPA Lead Inspector Signature/Date	<i>Charese Simpson</i>	3.21.2024
	Charese Simpson	Date
Supervisor Signature/Date		
	Samuel Tate	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

The United States Environmental Protection Agency (EPA) Region 6 Inspectors Charese Simpson and Julia Torres arrived at the Grace Pasadena Catalyst (GPC) facility at 9:00 AM on Tuesday, February 13, 2024, for an announced inspection. We met with David Theiler (EHSS Manager) and other GPC employees for an opening meeting. I, Charese Simpson, presented my credentials and informed GPC personnel that this was an EPA inspection to determine compliance with the federal Chemical Accident Prevention Program. The scope of the inspection was a partial compliance evaluation (PCE), which included an evaluation of the facility's compliance with the Clean Air Act (CAA) Section 112(r)(1) & (7), the General Duty Clause and the Chemical Accident Prevention Provisions in 40 C.F.R. Part 68. GPC's Risk Management Plan (RMP) is listed as a Program Level Three (3) facility. I inquired if an employee representative was available pursuant to Section 112(r)(6)(L) of the CAA to participate in this inspection and was informed that Grace Pasadena Catalyst is a non-union facility.

FACILITY DESCRIPTION

Grace Pasadena Catalyst is located at 10001 Chemical Road Pasadena, Texas 77507. GPC site is in Harris County and manufactures catalysts used to produce polyolefin.

GPC's regulated process includes three current Program Level 3 RMP-Covered Processes and equipment: Epichlorohydrin Tank, Propylene Storage Tank, and the Titanium Tetrachloride Storage Tank. GPC handles one regulated flammable chemical under the Risk Management Program: Propylene [1-Propene] (CAS Number: 115-07-1). In addition, GPC handles two regulated toxic chemicals under the Risk Management Program: Epichlorohydrin [Oxirane, (chloromethyl)-] (CAS Number:106-89-8) and Titanium tetrachloride [Titanium chloride (TiCl₄) (T-4)-] (CAS Number: 7550-45-0).

GPC has approximately 130 full-time employees that work at the site, in addition to the independent contractors that work at the plant. The facility operates 24 hours a day 7 days a week.

Section II – OBSERVATIONS

On Thursday, February 15, 2024, EPA inspectors were accompanied by Terry Phillips, David Fontaine, and Keith Meyer to conduct a tour of the site. EPA observed the covered processes, emergency equipment, hot work permits, and the control room. GPC's operators can access standard operating procedures (SOPs) electronically. Prior to the tour, EPA was provided with piping and instrumentation diagrams (P&IDs) of the process unit that assisted in the tour.

Subpart A – General

40 C.F.R. § 68.10 Applicability – GPC is a Title V stationary source that has an air operating permit and more than threshold quantities of regulated substances (toxic and flammable) in its process streams; therefore, these regulations are applicable. GPC is subject to the Occupational Safety and Health Administration (OSHA) process safety management (PSM) standard, 29 C.F.R. § 1910.119, and has three Program Level 3 processes under OSHA PSM.

40 C.F.R. § 68.12 General Requirements– EPA reviewed GPC's RMP registration submitted on October 3,

2021. It listed the toxic and flammable chemicals for its Program 3 processes.

40 C.F.R. § 68.15 Management – GPC developed a management system to oversee the implementation of risk management program elements, documented the positions for implementing the individual requirements of the risk management program, and defined the lines of authority using its RMP Management Organizational Chart, which lists responsibilities.

Subpart B – Hazard Assessment

40 C.F.R. § 68.20 Applicability – GPC has three Program Level 3 processes subject to this subpart. GPC is required to prepare an off-site consequence analysis and complete the five-year accident history.

40 C.F.R. § 68.22 Off-Site Consequence Analysis Parameters – GPC used parameters required in this part to calculate flammable worst-case and alternative release scenarios. GPC utilizes RMP*Comp™ as the technique for modeling the release scenarios. For the worst-case and alternative case scenarios involving the flammable and toxic chemicals, the facility used the endpoints provided in Appendix A of 40 C.F.R. Part 68, appropriate wind speeds and stability classes, ambient temperatures and humidity values, values for height of the release, and surface roughness values for the release scenario analyses.

40 C.F.R. § 68.25 Worse-Case Release Scenario Analysis – During the inspection, EPA reviewed documentation from GPC regarding the worst-case release scenario analysis for their flammable process. This analysis used the RMP*Comp™ which is a dispersion modeling suite that includes toxic dispersion, fire, and explosion models. GPC analyzed and reported in the RMP their worst-case release scenario, estimated to create the greatest distance to endpoint, and resulting from an accidental release of a regulated flammable substance from a covered process under worst-case conditions. The worst-case release quantity was determined by the greatest amount held in a single vessel, considering administrative controls that limit the maximum quantity released.

40 C.F.R. § 68.28 Alternative Release Scenario Analysis – GPC identified and documented the alternative release scenario to represent all toxic substances held in a covered process, using a scenario that is likely to occur. GPC utilizes the RMP*Comp™. They maintain aerial photos showing the alternative release scenario endpoint distance radius and a circle centered on the approximate location of the unit that is considered in the alternative release scenario; therefore, meeting the requirements of the regulation.

40 C.F.R. § 68.30 Defining Off-Site Impacts - Population – GPC used the most current Census Bureau population data and the distances to endpoints, as specified in the regulation, to calculate the population numbers reported in their RMP.

40 C.F.R. § 68.33 Defining Off-Site Impacts - Environment – GPC identified environmental receptors in the distance to the endpoint or in the vicinity of the facility, as appropriate, in the area maps used for the modeling.

40 C.F.R. § 68.36 Review and Update – GPC reviewed and updated the off-site consequence analyses at least once every five years, as required by this subpart.

40 C.F.R. § 68.39 Documentation – GPC maintained records of the off-site consequence analyses, in accordance with this subpart. These records included:

- documentation of vessels or pipelines;
- substances selected for worse case and alternative release scenarios;
- documentation of estimated quantity released, release rate, and duration of release;
- methodology used to determine distance to endpoint; and,
- data used to estimate population and environmental receptors.

40 C.F.R. § 68.42 Five-year accident history – EPA reviewed GPC’s five-year accident history and OSHA logs for 2018 - 2023. EPA did not identify accidental releases from the covered process that resulted in one or more of the following: on-site deaths, injuries, significant property damage on-site, known off-site deaths, evacuations, sheltering in place, property damage, or environmental damage in its accident history.

Subpart D – Program 3 Prevention Program

40 C.F.R. § 68.65 Process Safety Information – GPC compiled written process safety information, which included information pertaining to the hazards of the regulated substances used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process. Safety Data Sheets (SDSs) for the process chemicals were provided and detailed process safety information was provided that contained the following data for the hazards of the substances used: toxicity information, permissible exposure limits, physical data, reactivity data, corrosivity data, thermal and chemical stability data, and the hazardous effects of inadvertent mixing of materials that could foreseeably occur. EPA reviewed documentation concerning the technology of the process, which included a block flow diagram, process chemistry, maximum intended inventory, safe upper and lower limits for such items as: temperatures, pressures, flows or compositions, and an evaluation of the consequences of deviation for each covered process. EPA reviewed documentation pertaining to the equipment of the process, including materials of construction, piping and instrumentation diagrams (P&IDs), electrical classification, relief system design and design basis, ventilation system design, design codes and standards employed, material and energy balances, and safety systems.

40 C.F.R. § 68.67 Process hazard analysis (PHA) – EPA reviewed GPC’s PHA procedure. GPC performed PHAs that identified, evaluated, and controlled the hazards involved in the processes. The facility completes each PHA based on the five-year cycle from the previous PHA. GPC conducts PHAs using the Hazard and Operability Study (HAZOP) methodology.

Each PHA EPA reviewed addressed the hazards of the process and included: identification of any incident that had a likely potential for catastrophic consequences; engineering and administrative controls applicable to hazards and their interrelationships; consequences of failure of engineering and administrative controls; stationary source siting factors; human factors; and, an evaluation of a range of the possible safety and health effects of failed controls.

GPC established a system, called “Enablon”, to track and promptly address the team’s findings and recommendations. The facility has a written schedule of when actions are to be completed.

The PHAs were performed by a team with expertise in engineering and process operations. The team included appropriate personnel from GPC and a contractor with knowledge of the facility and in the specific PHA methodology used.

40 C.F.R. § 68.69 Operating Procedures – GPC developed and implemented written operating procedures that provide instructions or steps for conducting activities associated with each covered process, consistent with the safety information. The operating procedures EPA reviewed addressed: the steps for each operating phase (initial and normal startup, normal operations, temporary operations, emergency operation and shutdown, normal shutdown, and startup following a turnaround or after emergency shutdown); the consequences of deviation and mechanisms to correct and/or avoid deviation; safety and health considerations; the properties of, and hazards presented by, chemicals used in the process; the precautions necessary to prevent exposure; quality control for raw materials; and, the safety systems and their functions. Operating procedures are accessible to process operators and other employees electronically via Document Management System (DMS) Database. During the inspection, EPA reviewed GPC's safe work procedures, including lock out/tag out procedures and confined space entry procedures. The company utilizes safe work permits, which are required prior to any contractor entering a confined space. GPC is required to annually certify that operating procedures are current and accurate. GPC provided operating procedure certifications from the years 2021-2023. The operating procedures are current and accurate.

40 C.F.R. § 68.71 Training – EPA reviewed GPC's training program procedure and employee training records. The facility's training program ensured that each employee presently operating the covered process and each employee newly assigned to a covered process are trained or tested to qualify as competent in an overview of the process and in the operating procedures that pertain to their duties. In addition, GPC's operators must go through a training program, which includes the following: on- the-job training, testing process that is written and computer-based, and a series of field demonstration tests. The "Aspire" training database is GPC's online system to house training documents. During the inspection, EPA reviewed several individuals training documents. GPC's is required to provide refresher training every three years, and more often, if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. Out of the six employees reviewed, one employee was one month late in completing his requalification training. The last date of his training was on January 19, 2021. The next training should have been completed on January 19, 2024. Employees who are involved in operating a process must be requalified every three years. [AOC #1 - 68.71(b)]

40 C.F.R. § 68.73 Mechanical Integrity – EPA reviewed the written procedures GPC established to maintain the ongoing integrity of its process equipment. EPA spoke with GPC's Maintenance Manager who explained the facility's mechanical integrity program and procedures. EPA reviewed the facility's inspection records for several vessels, underground piping, process safety valves, and other RMP covered equipment. EPA did not identify any RMP equipment that was overdue. EPA reviewed GPC's ultrasonic thickness (UT), internal and external visual inspection reports for several piping circuits. All piping circuits reviewed were up to date on their inspections.

GPC uses a third-party contractor who conducts the facility's mechanical integrity inspection and testing. GPC houses records of scheduled, completed, and future inspections, preventative maintenance tasks, and work orders via the "SAP" Database. During the inspection, EPA reviewed training records of personnel who are American Petroleum Institute (API) certified and maintenance employees.

40 C.F.R. § 68.75 Management of Change (MOC) – EPA reviewed GPC's MOC procedure. The written MOC procedure assured the facility managed changes to process chemicals, technology, equipment, procedures, and changes to stationary sources that effect a covered process. The procedure assured that the following considerations were addressed prior to any change: technical basis for change, impact

of change on safety and health, modifications to operating procedures, necessary time period for the change, and authorization requirements for a proposed change. GPC failed to implement their MOC written procedures to manage changes to procedures (see AOC #4 below) [AOC #2 – 68.75(a)]. At the time of the inspection, EPA reviewed several MOCs. Employees involved in operating a process and maintenance and contract employees whose job tasks will be affected by a change were not always trained prior to start up. According to MOCs: #0822 and #7641, the employees were notified of the change, however, there was no documentation of training being completed [AOC #3 – 68.75(c)]. In addition, MOCs: #244, #0822, #7641 indicated a change to several operating procedures. However, GPC failed to have the updated procedures that reflected the change [AOC #4 – 68.75(e)].

40 C.F.R. § 68.77 Pre-startup Safety Review (PSSR) – EPA reviewed GPC’s selected pre-startup safety reviews for the associated MOCs. The PSSRs documented that, when the facility installed a new stationary source, or significantly modified an existing source, a review was conducted prior to the introduction of a regulated substance into the process, the construction and equipment design were completed in accordance with design specifications, and the required safety, operating, and maintenance and emergency procedures are in place.

40 C.F.R. § 68.79 Compliance Audits – GPC provided their two most recent certified RMP Compliance Audits conducted in May 2019 and May 2022. GPC failed to certify their compliance audit every 3 years [AOC #5 - 68.79(a)]. However, it was noted during the inspection that GPC provided EPA with their June 2019 and 2022 compliance audit certification dated February 14, 2024. GPC is required to promptly determine and document an appropriate response to each of the findings of the compliance audit; however, the facility failed to document those deficiencies were corrected promptly. [AOC #6 - 40 C.F.R. § 68.79(d)] GPC had four repeat findings that were in their 2022 compliance audit from the 2019 compliance audit. It was noted that GPC had recognized and documented that they have found these repeat findings that were in the 2022 compliance audit. In addition, these repeat findings were not closed promptly.

40 C.F.R. § 68.81 Incident Investigation – GPC provided a list of all incident investigations that occurred within the past five years. Of those reviewed, the incident investigation team consisted of at least one person knowledgeable in the process involved. GPC has an incident management standard work practice procedure for both near-miss and incident reporting. GPC investigated each incident that resulted in, or could reasonably have resulted in, a catastrophic release of a regulated substance.

40 C.F.R. § 68.83 Employee Participation – GPC developed a written plan of action regarding the implementation of the employee participation required by this section, which is integrated into the program elements. GPC’s written plan describes how they consult with employees on the performance and development of process hazard analyses, and on the development of the other elements of process safety management required under the rule. The action plan provides employees access to process hazard analyses and to all other information that must be developed under this rule.

40 C.F.R. § 68.85 Hot Work Permit – GPC provided their hot work and safe work procedure that detailed guidance for hot work/safe work activities at the site. Safe work and hot work are required for all activities involving cold work, vehicle entry, electrical work, welding, flame cutting, grinding, etc. EPA reviewed a sample of reports that consisted of spark producing work. The several hot work permits that EPA reviewed documented fire prevention and protection requirements that were not implemented prior to the beginning of hot work operations [AOC #7 – 68.85(b)]. Six hot work permits EPA reviewed indicated spark-producing tools. These spark-producing tools are considered high energy hot work.

Grace's hot work permit did not indicate a fire watch to be present even though a fire watch is required for the hot work that was conducted. According to GPC's "Hot Work" procedure, "Flame or spark-producing hot work (high energy hot work) - An operation that can produce enough heat from flame, spark, and other means, such as friction, with sufficient energy to ignite combustibles or flammables. Hot work includes electric arc and gas welding, grinding, metal cutting, burning, brazing, soldering, metal drilling, and other spark-producing or heat producing or open flame operations. This type of hot work always requires a fire watch."

40 C.F.R. § 68.87 Contractors – I reviewed GPC's contractor procedure. GPC utilizes the ISNetWorld contractor database to evaluate information regarding a contractor's safety performance and programs. The program requires each contractor to be evaluated based on the risk category of their work. The information and documentation that is housed in ISNetWorld for each contractor will be used to evaluate the contractor's safety performance and programs. All contractors that will perform work at the facility shall receive and maintain the following training prior to work: OSHA Training, GPC Site Specific Training, Unit Specific Training, and Contractor Specific Training. Contractors are also informed of known potential hazards, provisions of the Emergency Action Plan (EAP), and health and safety procedures through the work permit procedure. The GPC site implements safe work practices consistent with 40 C.F.R. § 68.69(d), to control the entrance and exit of the contract employees via the security gate and badging system.

Subpart E – Emergency Response

40 C.F.R. § 68.90 Applicability – GPC is designated as a "responding" stationary source in case of an accidental release of a regulated substance; therefore, the facility shall comply with the requirements of 40 C.F.R. § 68.95.

40 C.F.R. § 68.93 Emergency Response Coordination Activities – GPC coordinates with Pasadena Fire Department and other local emergency planning and response organizations. At the time of the inspection, GPC provided several documents of coordination with local authorities that included the names of the individuals involved, their contact information, and the nature of the coordination for the recent coordination activities that took place.

40 C.F.R. § 68.95 Emergency response program – EPA reviewed GPC's emergency response plan. The plan included: procedures for informing the public and local emergency response agencies about accidental releases and procedures and measures for emergency response after an accidental release of a regulated substance. GPC's plan included proper documentation of first aid and emergency medical treatment necessary to treat accidental human exposures. The emergency response plan included procedures for the use of emergency response equipment, and for its inspection, testing, and maintenance in relevant emergency response procedures. EPA reviewed several emergency response equipment inspections such as, but not limited to, the fire water pumps, fire extinguishers, safety showers, and self-contained breathing apparatuses (SCBAs). Not all SCBA inspections were completed monthly in the year of 2023. EPA did not receive SCBA inspection documentation for the months of January, April, June, July, August, September, or November of 2023 [**AOC #8 – 68.95(a)(2)**]. In addition, EPA reviewed several Emergency Response Team (ERT) members training for CPR, HAZMAT, and/or Rescue. There were 12 employees who were part of the ERT that could respond off-site whose training was not up to date [**AOC #9 – 68.95(a)(3)**]. GPC shall implement an emergency response program for the purpose of protecting public health and the environment. Such program shall include the following elements: Training for all employees in relevant procedures.

40 C.F.R. § 68.96 Emergency Response Exercises – As part of coordination with local emergency response officials required by §68.93, GPC consulted with officials to establish an appropriate frequency for field exercises.

Subpart G – Risk Management Plan

40 C.F.R. § 68.190 Updates – GPC’s RMP was re-submitted on October 3, 2021.

40 C.F.R. § 68.195 Required corrections – GPC’s next RMP registration re-submission is due by October 3, 2026, unless an update or correction is required by 40 C.F.R. § 68.190 or 40 C.F.R. § 68.195 prior to the five-year renewal deadline.

Section III – AREAS OF CONCERN

AOC 1 – 40 C.F.R § 68.71(b) Refresher Training

“(b) Refresher training shall be provided at least every three years, and more often, if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. The owner or operator, in consultation with the employees involved in operating the process, shall determine the appropriate frequency of refresher training.”

EPA reviewed eight operators’ trainings, out of the eight reviewed one employee is currently ~1 month late on his requalification training. The last date of his training was on January 19, 2021. The requalification is every 3 years. GPC failed to provide the requalification training at least every three years.

AOC 2 – 40 C.F.R § 68.75(a) Management of Change (MOC)

“(a) 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.”

GPC failed to implement their MOC written procedures to manage changes to procedures.

AOC 3 – 40 C.F.R § 68.75(c) Management of Change (MOC)

“(c) Employees involved in operating a process and maintenance and contract employees whose job tasks will be affected by a change in the process shall be informed of, and trained in, the change prior to start-up of the process or affected part of the process.”

MOC #0822 and #7641 required operators or affected employees to be trained. The employees were notified of the change, however, GPC failed to train employees whose job task will be affected by a change in the process and provide documentation of training being completed.

AOC 4 – 40 C.F.R § 68.75(e) Management of Change (MOC)

“(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.”

MOC #244, #0822, #7641 required a change to a procedure however GPC failed to provide the procedure that reflected the change.

AOC 5 – 40 C.F.R § 68.79(a) Compliance Audits

“(a) The owner or operator shall certify that they have evaluated compliance with the provisions of this subpart at least every three years to verify that procedures and practices developed under this subpart are adequate and are being followed.”

GPC failed to certify their compliance audit every 3 years. However, it was noted during the inspection that GPC provided EPA with their June 2019 and 2022 compliance audit certification dated February 14, 2024.

AOC 6 – 40 C.F.R § 68.79(d) Compliance Audits

“(d) 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.”

GPC had four repeat findings that were in their 2022 compliance audit from the 2019 compliance audit. It was noted that GPC has recognized and documented that they have found these repeat findings that were in the 2022 compliance audit. GPC failed to close these repeat findings promptly.

AOC 7 – 40 C.F.R § 68.85(b) Hot Work Permit

“(b) The permit shall document that the fire prevention and protection requirements in 29 CFR 1910.252(a) have been implemented prior to beginning the hot work operations.”

Six hot work permits EPA reviewed indicated spark-producing tools. These spark-producing tools are considered high energy hot work. GPC failed to indicate a fire watch to be present even though a fire watch is required for the hot work that was conducted.

AOC 8 – 40 C.F.R § 68.95(a)(2) Emergency Response

“(a)(2) The owner or operator shall certify that they have evaluated compliance with the provisions of this subpart at least every three years to verify that procedures and practices developed under this subpart are adequate and are being followed.”

EPA reviewed several emergency response equipment inspections such as, but not limited to, the fire water pumps, fire extinguishers, safety showers, and self-contained breathing apparatuses (SCBAs). Not all SCBA inspections were completed monthly in the year of 2023. GPC failed to provide SCBA inspection documentation for the months of January, April, June, July, August, September, or November of 2023.

AOC 9 – 40 C.F.R § 68.95(a)(3) Emergency Response

“(a)(3) 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: Training for all employees in relevant procedures.”

EPA reviewed several ERT members training for CPR, HAZMAT, and/or Rescue. There were 12 employees who are a part of the ERT (that can respond off-site) whose training is not up to date. GPC failed to train ERT members.

Closing Meeting – I conducted a closing conference at Grace Pasadena Catalyst on February 16, 2024. During the closing conference, I reviewed the Areas of Concern noted during the inspection.

Section IV – FOLLOW UP

The following information was received by EPA after exiting the Facility on February 16, 2024:

- 1) Additional monthly SCBA inspections records

Section V – LIST OF APPENDICES

There are no photos, videos, or other appendices to this report.