

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
VICTORIA DIVISION

_____)	
UNITED STATES OF AMERICA,)	
)	
	Plaintiff,)	
)	Civil Action No. 6:21-cv-0043
	v.)	
)	
FORMOSA PLASTICS CORPORATION,)	
TEXAS,)	
)	Judge
	Defendant.)	
_____)	

COMPLAINT

The United States of America, acting on behalf of the United States Environmental Protection Agency (“EPA”), files this Complaint and alleges as follows:

NATURE OF THE ACTION

1. This is a civil environmental enforcement action for assessment of civil penalties and injunctive relief brought pursuant to Section 113(b) of the Clean Air Act (“CAA”), 42 U.S.C. § 7413(b), against Formosa Plastics Corporation, Texas (“Defendant”) for violations of Sections 112(r)(1) and 112(r)(7) of the CAA, 42 U.S.C. §§ 7412(r)(1) and 7412(r)(7), and the Chemical Accident Prevention Provisions promulgated at 40 C.F.R. Part 68 (the “Risk Management Program” regulations), at Defendant’s petrochemical manufacturing plant located at 201 Formosa Drive in Point Comfort, Texas (the “Facility”).

JURISDICTION, VENUE, AUTHORITY AND NOTICE

2. This Court has jurisdiction over the subject matter of this action pursuant to Section 113(b) of the CAA, 42 U.S.C. § 7413(b), and pursuant to 28 U.S.C. §§ 1331, 1345, and 1355.

3. Venue is proper in this judicial district pursuant to 42 U.S.C. § 7413(b) and 28 U.S.C. §§ 1391(b) and (c) and 28 U.S.C. § 1395 because Defendant does business within this judicial district at its petrochemical manufacturing plant located in Point Comfort, Texas, and because the actions giving rise to the violations alleged in this Complaint occurred in this judicial district.

4. Authority to bring this action is vested in the United States Department of Justice pursuant to Section 305 of the CAA, 42 U.S.C. § 7605.

5. Notice of commencement of this action has been given to the State of Texas pursuant to Section 113(b) of the CAA, 42 U.S.C. § 7413(b).

PARTIES

6. Plaintiff is the United States of America, acting at the request of the EPA.

7. Defendant is Formosa Plastics Corporation, Texas, a corporation organized under the laws of the State of Delaware.

8. Defendant is a “person” within the meaning of Section 302(e) of the CAA, 42 U.S.C. § 7602(e), and within the meaning of Section 113(b) of the CAA, 42 U.S.C. § 7413(b).

9. At all times relevant to this Complaint, Defendant owned and operated a petrochemical manufacturing plant at 201 Formosa Drive, Point Comfort, Texas.

STATUTORY AND REGULATORY FRAMEWORK

A. CAA Section 112(r)(1) – the “General Duty Clause”

10. CAA Section 112(r)(1), 42 U.S.C. § 7412(r)(1), provides in pertinent part:

The owners and operators of stationary sources producing, processing, handling or storing [any substance listed pursuant to Section 112(r)(3) of the CAA or any other extremely hazardous substance] have a general duty . . . to identify hazards which may result from such releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur.

11. A “regulated substance” is any substance set forth in 40 C.F.R. § 68.130, tables 1, 2, 3, and 4. 42 U.S.C. § 7412(r)(2)(B).

12. Extremely hazardous substances include regulated substances and chemicals on the list of extremely hazardous substances published pursuant to Section 302 of the Emergency Planning and Community Right-to-Know Act (“EPCRA”), 42 U.S.C. § 11002, at 40 C.F.R. Part 355, Appendices A and B, but the CAA does not limit the term to such listed substances. Thus, the term “extremely hazardous substances” also includes other agents not listed or otherwise identified by any Government agency that may, as the result of short-term exposure associated with release to the air, cause death, injury or property damage. S. Rep. No. 228, *reprinted in* 1990 U.S.C.C.A.N. at 3596.

13. The term “accidental release” is defined by CAA Section 112(r)(2)(A), 42 U.S.C. § 7412(r)(2)(A), as “an unanticipated emission of a regulated substance or other extremely hazardous substance into the ambient air from a stationary source.”

B. CAA Section 112(r)(7) – Risk Management Program Regulations

14. CAA Section 112(r)(7), 42 U.S.C. § 4712(r)(7), provides in pertinent part:

(A) In order to prevent accidental releases of regulated substances, the Administrator is authorized to promulgate release prevention, detection, and correction requirements which may include monitoring, record-keeping, reporting, training, vapor recovery, secondary containment, and other design, equipment, work practice, and operational requirements.

* * * *

(B) (ii) The regulations under this subparagraph shall require the owner or operator of stationary sources at which a regulated substance is present in more than a threshold quantity to prepare and implement a risk management plan to detect and prevent or minimize accidental releases of such substances from the stationary source, and to provide a prompt emergency response to any such releases in order to protect human health and the environment. Such plan shall provide for compliance with the requirements of this subsection.

* * * *

(B) (iii) The owner or operator of each stationary source covered by clause (ii) shall register a risk management plan prepared under this subparagraph with the Administrator before the effective date of regulations under clause (i) in such form and manner as the Administrator shall, by rule, require.

15. In 1994, EPA promulgated the Risk Management Program regulations in accordance with CAA Section 112(r)(7), 42 U.S.C. § 7412(r)(7). *See* 40 C.F.R. Part 68, Chemical Accident Prevention Provisions. These regulations require owners and operators of stationary sources that have more than a threshold quantity of a regulated substance in a process to develop and implement a risk management program that must be described in a risk management plan (“RMP”) submitted to EPA. The RMP must include, among other things, a management system, a hazard assessment, and a prevention program.

16. Pursuant to 40 C.F.R. § 68.10, the owner or operator of a stationary source that has more than a threshold quantity of a regulated substance in a process must comply with the Risk Management Program regulations.

17. CAA Section 112(r)(2)(C), 42 U.S.C. § 7412(r)(2)(C), and 40 C.F.R. § 68.3, define a “stationary source” as “any buildings, structures, equipment, installations, or substance emitting stationary activities (i) which belong to the same industrial group, (ii) which are located

on one or more contiguous properties, (iii) which are under the control of the same person, ...and (iv) from which an accidental release may occur.”

18. A “process” is defined broadly to mean “any activity involving a regulated substance including any use, storage, manufacturing, handling, or on-site movement of such substances, or [any] combination of these activities” and “any group of vessels that are interconnected, or separate vessels that are located such that a regulated substance could be involved in a potential release, shall be considered a single process.” 40 C.F.R. § 68.3.

19. A “covered process” means “a process that has a regulated substance present in more than a threshold quantity as determined under [40 C.F.R.] § 68.115.” 40 C.F.R. § 68.3.

20. The regulations at 40 C.F.R. Part 68 divide the covered processes into three categories, designated as Program 1, Program 2, and Program 3, and set forth specific requirements for owners and operators of stationary sources with processes that fall within the respective programs.

21. A “Program 3” process is subject to the most stringent risk management requirements under the Risk Management Program regulations. Pursuant to 40 C.F.R. § 68.12, the owner or operator of a stationary source with a process subject to the Program 3 requirements must, among other things, comply with the prevention requirements of 40 C.F.R. §§ 68.65 – 68.87 and the emergency response program of 40 C.F.R. §§ 68.90-68.95.

22. Pursuant to 40 C.F.R. § 68.67(a), the owner or operator must perform an initial process hazard analysis (“PHA”) on processes covered by 40 C.F.R. Part 68. The PHA must be “appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process. The owner or operator must determine and document the priority order for conducting process hazard analyses based on a rationale which includes such considerations

as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process.” 40 C.F.R. § 68.67.

23. Pursuant to 40 C.F.R. § 68.67(e), the owner or operator must establish a system to promptly address the PHA findings and recommendations, assure that the recommendations are resolved in a timely manner and the resolution is documented, and develop a written schedule of when these actions are to be completed.

24. Pursuant to 40 C.F.R. § 68.67(f), at least every five years after the completion of the initiation process hazard analysis, the process hazard analysis must be updated and revalidated by a team meeting the requirements in 40 C.F.R. § 68.67(d) to assure that the process hazard analysis is consistent with the current process.

25. Pursuant to 40 C.F.R. § 68.69(d), the owner or operator must develop and implement safe work practices (including wearing proper personal protective equipment) to provide for the control of hazards during operations such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a stationary source by maintenance, contractor, laboratory, or other support personnel. These safe work practices must apply to employees and contractor employees.

26. Pursuant to 40 C.F.R. § 68.71(b), refresher training must 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.

27. Pursuant to 40 C.F.R. § 68.73(b), the owner or operator must establish and implement written procedures to maintain the ongoing integrity of work areas and process equipment, which includes pressure vessels and storage tanks, piping systems (including

components such as valves), relief and vent systems and devices, emergency shutdown systems, controls (including monitoring devices and sensors, alarms, and interlocks), and pumps.

28. Pursuant to 40 C.F.R. § 68.73(d), inspections and tests must be performed on process equipment to ensure mechanical integrity. The inspections and testing must follow recognized and generally accepted good engineering practices. 40 C.F.R. § 68.73(d)(2). Under 40 C.F.R. § 68.73(d)(3), the frequency of inspections and tests of process equipment must be consistent with applicable manufacture's recommendations and good engineering practices, and more frequently if determined to be necessary by prior operating experience.

29. Pursuant to 40 C.F.R. § 68.73(d)(4), the owner or operator must document each inspection and test that has been performed on process equipment. The documentation must identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.

30. Pursuant to 40 C.F.R. § 68.73(e), the owner or operator must correct deficiencies in equipment that are outside acceptable limits (as defined by 40 C.F.R. § 68.65) before further use or in a safe and timely manner when necessary means are taken to assure safe operation.

31. Pursuant to 40 C.F.R. § 68.73(f)(3), the owner or operator must assure that maintenance materials, spare parts and equipment are suitable for the process application for which they will be used.

32. Pursuant to 40 C.F.R. § 68.79(a), the owner or operator must certify to having evaluated compliance with the provisions of 40 C.F.R. Part 68, Subpart D, at least every three years to verify that the procedures and practices developed under 40 C.F.R. Part 68, Subpart D

are adequate and are being followed. The required evaluation is referred to as a compliance audit. 40 C.F.R. § 68.79(b).

33. Pursuant to 40 C.F.R. § 68.79(d), the owner and operator must promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.

34. Pursuant to 40 C.F.R. § 68.85(a), the owner or operator must issue a hot work permit for hot work operations conducted on or near a covered process. Hot work is any work that involves burning, welding, cutting, or using fire or spark-producing tools, or other work that produces a source of ignition.

35. Pursuant to 40 C.F.R. § 68.95(a), the owner or operator must develop and implement an emergency response program for the purpose of protecting public health and the environment. Such program must include the following elements: (1) an emergency response plan, which shall be maintained at the stationary source; (2) procedures for the use of emergency response equipment and for its inspection, testing, and maintenance; (3) training for all employees in relevant procedures; and (4) procedures to review and update, as appropriate, the emergency response plan to reflect changes at the stationary source and ensure that employees are informed of changes.

36. Pursuant to CAA Section 112(r)(7)(E), it is unlawful for any person to operate any stationary source subject to the Risk Management Program requirements and regulations in violation of such requirements and regulations.

C. Enforcement of the Clean Air Act by the United States

37. CAA Section 113(b)(2) provides that whenever a person violates any requirement or prohibition of Subchapter I of the CAA (42 U.S.C. §§ 7401-7515), the Administrator of EPA

“shall, as appropriate, in the case of any person that is the owner or operator of . . . a major stationary source, and may, in the case of any other person, commence a civil action for a permanent or temporary injunction, or to assess and recover a civil penalty of not more than \$25,000 per day for each violation, or both . . .” 42 U.S.C. § 7413(b)(2). The Federal Civil Penalties Inflation Adjustment Act of 1990, 28 U.S.C. § 2461 note, as amended by the Debt Collection Improvement Act of 1996, 31 U.S.C. § 3701 note, and the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015, Pub. L. No. 114–74 § 701, 129 Stat. 584, 599–60, requires EPA to periodically adjust its civil penalties for inflation. The statutory penalty amounts for violations of CAA Section 113(b)(2) were increased by EPA’s Civil Monetary Penalty Inflation Adjustment Rule to \$37,500 per day per violation occurring between January 12, 2009 and November 2, 2015, and to \$102,638 for violations continuing or occurring after November 2, 2015, where penalties are assessed on or after December 23, 2020. See 40 C.F.R. § 19.4 and 85 Fed. Reg. 83818-01 (December 23, 2020).

GENERAL ALLEGATIONS

38. At all relevant times, Defendant has owned and operated the Facility within the meaning of CAA Section 112(r), 42 U.S.C. § 7412(r), and 40 C.F.R. Part 68.

39. The Facility is located on approximately 2,500 acres of land in Point Comfort, Texas and produces petrochemicals.

40. At all relevant times, Defendant has operated numerous “stationary sources” as defined in CAA Section 112(r)(2)(C), 42 U.S.C. § 7412(r)(2)(C), and 40 C.F.R. § 68.3 at the Facility.

41. At all relevant times, Defendant has been a “person” as defined in CAA Section 302(e), 42 U.S.C. § 7602(e), and within the meaning of CAA Section 113(b), 42 U.S.C. § 7413(b).

42. At all relevant times, the Facility processed, handled, stored, and disposed of “regulated substances,” as defined in CAA Section 112(r)(2)(B), 42 U.S.C. § 7412(r)(2)(B), and 40 C.F.R. § 68.130, and “extremely hazardous substances,” within the meaning of CAA Section 112(r)(1), 42 U.S.C. § 7412(r)(1).

43. At all relevant times, Defendant was subject to the “General Duty Clause” of CAA Section 112(r)(1), 42 U.S.C. § 7412(r)(1), regarding the prevention of “accidental releases” at the Facility, as defined in CAA Section 112(r)(2)(A), 42 U.S.C. § 7412(r)(2)(A).

44. The Facility consists of several “covered processes,” including the High Density Polyethylene Unit No. 1; High Density Polyethylene Unit No. 2; Olefins 1 Unit; Linear Low Density Polyethylene Unit; and Chlor-Alkali Unit.

45. At all relevant times, Defendant had at least one regulated flammable and toxic substance in the “covered processes” identified in Paragraph 44 above the threshold quantity as set forth in 40 C.F.R. § 68.130.

46. At all relevant times, the Facility and the “covered processes” above were subject to the requirements of the “Program 3” Risk Management Program regulations pursuant to 40 C.F.R. §§ 68.10(d) and 68.12(d).

The May 2, 2013 Fire and Explosion

47. During the construction of the High Density Polyethylene No. 1 production unit (“HDPE 1”) in 1994, an Ethylene Purification Unit (“EPU”) was installed to remove impurities from the ethylene supply. The EPU process was designed to have three stages of operation, with

each stage consisting of columns (reactors containing catalyst) and other equipment such as heat exchangers (a system used to transfer heat between two or more fluids).

48. The EPU was a “stationary source” within the meaning of CAA Section 112(r)(2)(C), 42 U.S.C. § 7412(r)(2)(C).

49. The EPU is an outdoor unit and is not enclosed in any building. In its second stage, the EPU stored and utilized the proprietary metal catalyst, Puraspec 3450, a mixture of copper, zinc, and aluminum oxides. Copper oxide is the active catalyst. During operation of the EPU, reduction reactions remove oxygen from the copper oxide, reducing it to metallic copper. This process requires periodic regeneration. The regeneration process oxidizes the copper back to copper oxide.

50. Incomplete regeneration of the catalyst may result in residual hydrocarbons or deposited carbon which may be capable of combustion.

51. The Material Safety Data Sheet for Puraspec 3450 recognizes the reduced or partially regenerated catalyst as pyrophoric, i.e., able to ignite spontaneously with exposure to oxygen or air, and cautions that contact with air should be minimized.

52. Puraspec 3450 in its reduced or partially regenerated state is an extremely hazardous substance within the meaning of CAA Section 112(r), 42 U.S.C. § 7412(r).

53. The risk of combustion associated with reduced or partially regenerated Puraspec 3450 catalyst is a recognized hazard.

54. In 1995, high temperatures were observed in one of the EPU’s second stage columns during the regeneration of the catalyst. The regeneration was stopped before completion, leaving the catalyst partially regenerated.

55. In September 1995, all three stages of the EPU were taken out of service, put in standby, and isolated from HDPE 1 by single block valves.

56. The manufacturer's operating instructions for the EPU state that after taking the second stage out of service the column should be immediately purged and pressurized with nitrogen. The purpose of purging the second stage column with nitrogen is to prevent any residual ethylene from having extended contact with the catalyst which can lead to polymers or carbon deposits on the catalyst.

57. Defendant did not immediately purge and pressurize the system with nitrogen, as specified in the manufacturer's operating instructions.

58. In 1996, the third stage of the EPU was placed back in service, leaving the first and second stages out of service.

59. In 2007, Defendant developed a facility-wide procedure for out-of-service equipment. In 2008, a PHA recognized the first and second stages of the EPU to be out of service and recommended decommissioning the equipment.

60. Defendant did not implement its out-of-service equipment procedure at the EPU.

61. In January 2011, in preparing the first and second stages of the EPU for blinding (blinding is the process of placing steel plates between two flanges to segregate fluids or isolate equipment prior to the commencement of work to prevent the release of hazardous substances into the work area), the system was found to have hydrocarbons present. Many days of purging the system with nitrogen took place to remove the hydrocarbons before blinding and air gaps could be installed.

62. In January 2011, Defendant completed the isolation and blinding of the first and second stages, including blinding (removing) the pressure relief valves, which left no pressure relief alternative in place.

63. In September 2011, Defendant generated a proposal to remove the ethylene purification section equipment from HDPE 1 to make room for an expansion in production.

64. No written work plan or hazard assessment for the EPU removal was conducted.

65. Subject to a reasonable opportunity for further investigation and discovery, Defendant completed a bid proposal for the removal of the EPU on January 16, 2013.

66. Subject to a reasonable opportunity for further investigation and discovery, on May 2, 2013, oxygen entered the column C212B, a reactor in the second stage of the EPU, as Defendant attempted to sample the inner vapor space of the column. The oxygen reached the partially-regenerated pyrophoric catalyst, Puraspec 3450. This began an exothermic reaction which heated the materials in the column. An exothermic reaction is a chemical reaction that releases energy through light or heat.

67. Subject to a reasonable opportunity for further investigation and discovery, the indicated temperature within the column temporarily stabilized when the oxygen feed did not continue. However, the heat generated by the localized reaction was then reabsorbed by the catalyst. This heating initiated a slower second exothermic reaction in a localized area within the reactor, causing the temperature to gradually increase until it reached temperatures that resulted in a rapid exothermic reaction.

68. This exothermic reaction along with the presence of gas produced a significant overpressure in the column. The pressure in the column could not be relieved as the pressure

relief system was isolated and disabled. The extreme overpressure caused the top dome flange gasket to fail, resulting in an explosion, release, and fire.

69. As a result of the explosion, pressurized flammable gases and particulate catalyst Puraspec 3450 were released into the air and from the Facility in the form of intense flames and a dark cloud of smoke and particulates.

70. As a result of the May 2, 2013 explosion and fire at the Facility, Defendant released an “extremely hazardous substance” into the ambient air.

71. The release of the extremely hazardous substance constituted an “accidental release” into the ambient air within the meaning of CAA Section 112(r)(2)(A), 42 U.S.C. § 7412(r)(2)(A).

72. Fourteen workers were injured, seven of whom required hospitalization, as a result of the fire and explosion.

73. The EPU was dismantled and removed from the Facility after the May 2, 2013 fire and explosion.

September 13, 2013 Fire

74. At times relevant to this Complaint, Defendant owned and operated the High Density Polyethylene Unit No. 2 (“HDPE 2”). HDPE 2 has ethylene and isobutene (regulated flammable substances) present in more than threshold quantities as determined by 40 C.F.R. § 68.115 and is a covered process as defined by 40 C.F.R. § 68.3.

75. On September 11, 2013, operators at the HDPE 2 observed problems in the Dehexanizer column of the unit, known as the C-301 column, which separates isobutane and hexene. Distillation columns fractionate or separate hydrocarbon constituents, with lighter fractions rising and heavier components circulating downward. Multiple trays are vertically

staged inside columns to collect different liquid fractions depending on elevation inside the column. Vapor moves upward through risers and out through slots. The vapor bubbles up through surrounding liquid on the tray. The slots are covered with “bubble caps.”

76. It was determined that the C-301 column had a restriction and needed to be shut down. Defendant’s maintenance group was required to isolate and remove all liquids from the C-301 column and purge it with nitrogen. While the C-301 column was shut down, Defendant planned to perform cleaning and maintenance on other pieces of equipment that required work.

77. On September 13, 2013, operators for the HDPE 2 opened the manways on the C-301 column and conducted a visual inspection of the manways and trays that revealed a solid polymer buildup. Manways are small passage ways or openings which allow a person to perform interior maintenance activities on a column. The hardened polymer appeared to be plugging the bubble caps on the trays. The maintenance supervisor called for hydroblasting of the C-301 column to remove the polymer.

78. On September 13, 2013, at 7:30 a.m., HDPE 2 operations unit issued Line Break Permit No. 56790 to maintenance personnel and contractors working to install blinds in column C-301 and other permits for work to be performed on the unit.

79. Initially, HDPE operators used a reciprocating saw to start cutting the polymer, but the polymer chunk was too hard. Operators then agreed that a small electric chainsaw would be more productive.

80. Subject to a reasonable opportunity for further investigation and discovery, a non-intrinsically-safe electric chainsaw was purchased from a local hardware store and brought to the Facility.

81. At or about 9:55 a.m., HDPE 2 operations personnel started cutting the polymer chunk with the electric chainsaw.

82. At approximately 10:19 a.m., a flash fire occurred at a manway on C-301.

83. Defendant's incident report found that the electric chainsaw motor was the likely ignition source for the incident by igniting an explosive environment created from dust combined with flammable vapors.

84. The fire seriously injured five persons, causing second and third degree burns and \$310,000 of property damage.

February 19, 2014 Propylene Release

85. At all times relevant to this Complaint, Defendant owned and operated the Olefins 1 production unit ("Olefins 1"). At all times relevant to this Complaint, Olefins 1 had propylene (a regulated flammable substance) present in more than a threshold quantity as determined by 40 C.F.R. § 68.115 and is a covered process as defined by 40 C.F.R. § 68.3.

86. On February 19, 2014, Olefins 1 operators were having problems pulling their daily sample from the propylene feed line. The sample point was connected to a ¾" valve that had been stripped. Operators then decided to move the sample location.

87. Operators removed the sample hose from the stripped valve in order to install the sample hose at a new sample point. Before operators could install a plug, the stripped valve started sputtering and began releasing liquid propylene.

88. An operator attempted to plug the valve with his hand but was unable to stop the release. The operator received a cold burn from the cryogenic propylene release.

89. The operator then left the area of the release to start closing valves to block in the pipeline. An assisting operator responded to the area and sounded an alarm.

90. A supervisor assessed the leak and tried to install a plug by hand with a pair of pliers and standard issue gloves. The supervisor received a cold burn from the cryogenic propylene release.

July 17, 2014 Cycle Gas Release

91. At all times relevant to this Complaint, Defendant owned and operated the Linear Low Density Polyethylene Unit (“LLDPE”). LLDPE had ethylene and 1-butene (regulated flammable substances) present in more than a threshold quantity as determined by 40 C.F.R. § 68.115 and, at all times relevant to this Complaint, was a covered process as defined by 40 C.F.R. § 68.3.

92. The High Pressure (“HP”) Nitrogen Line (N2H-41025-ABA-1 ½” N) and the Process Line (C2-41023-HSG 1-6”-S1 (FE-1407A to 4001\)), which contained flammable cycle gas, are connected by a pipe-to-pipe welded connection. The LLDPE, including where the HP Nitrogen Line and Process Line (C2-41023-HSG 1-6”-S1 (FE-1407A to 4001\)) are connected, is not enclosed in any building and is open to the outdoors.

93. The cycle gas contains ethylene and 1-butene, both regulated flammable substances.

94. The HP Nitrogen Line is part of the LLDPE Unit and is therefore part of a covered process.

95. The HP Nitrogen Line is interconnected with the LLDPE process and could cause a regulated substance release or interfere with mitigating the consequences of an accidental release and is therefore part of the LLDPE covered process.

96. On July 17, 2014, operators of the LLDPE found the HP Nitrogen Line (N2H-41025-ABA-1 ½” N) was no longer connected by weld to the Process Line (C2-41023-HSG 1-

6"-S1 (FE-1407A to 4001\)) and a release of highly flammable cycle gas was occurring from the LLDPE Train 1 reactor.

97. Evaluation of the separated piping found that the weld area where the HP Nitrogen Line and the Process Line joined had "poor weld quality."

98. Defendant determined that the HP Nitrogen Line was subject to vibration, also contributing to the weld failure.

99. As a result of weld failure and separation of the HP Nitrogen Line and the Process Line, approximately 11,418.4 pounds of ethylene and 13,147.8 pounds of 1-butene were released to the atmosphere over a 12 hour period.

October 7, 2014 Chlorine Release

100. At all times relevant to this Complaint, Defendant owned and operated the Chlor-Alkali Unit. At all times relevant to this Complaint, the Chlor-Alkali Unit had chlorine (a regulated toxic substance) present in more than a threshold quantity as determined by 40 C.F.R. § 68.115 and is a covered process as defined by 40 C.F.R. § 68.3.

101. On October 7, 2014, the Chlor-Alkali Unit was undergoing a turnaround, allowing for the maintenance of process equipment.

102. The Chlor-Alkali Unit employs a seal leg sight glass system. The seal leg sight glass is an instrument generally used to observe the level of fluid contained in a vessel. A constant flow of water is supplied to serve as a seal, preventing a chlorine gas release. The water that overflows continues through the drain piping into the chemical sewer.

103. An operator at the Chlor-Alkali Unit ("Operator 1") began to prepare the seal leg sight glass system for maintenance and in doing so blocked the water supply line.

104. Operator 1 then disconnected the water supply line and drained the water from the seal leg until he saw chlorine gas and then he closed the valve.

105. The removal of water from the seal leg allowed residual chlorine gas to fill the seal leg and the overflow drain piping leading to the chemical sewer.

106. Once the gas entered the chemical sewer piping, it flowed to a loose blind flange on the end of the chemical sewer.

107. The blind was corroded, loose, and missing bolts and nuts, which allowed the chlorine gas to escape to the atmosphere.

108. The gas traveled in the direction of the wind and affected workers in the adjacent area. Workers evacuated the area and were taken to receive medical attention.

109. Three employees and one contractor were treated for chlorine inhalation.

October 12, 2014 Hydrogen Chloride Release

110. The Chlor-Alkali Unit receives brine that is electrolytically separated into hydrogen, sodium hydroxide, and chlorine. The chlorine gas is washed, dried, and compressed. The resulting product is used to produce 1,2-dichloroethane.

111. The hydrochloric acid (HCl) system is part of the Chlor-Alkali Unit.

112. The Chlor-Alkali Unit is a “stationary source” within the meaning of CAA Section 112(r)(2)(C), 42 U.S.C. § 7412(r)(2)(C).

113. HCl is an extremely hazardous substance.

114. On October 12, 2014, there was a release of HCl at the Chlor-Alkali Unit after the pressure control valve PV-521 on the HCl system separated between the bonnet and the valve body.

115. Two bolts connecting the valve body and bonnet were corroded and broke, allowing HCl to leak from the HCl system to the atmosphere.

116. The bolts connecting the valve and bonnet were low grade stainless steel.

117. HCl is extremely corrosive to certain metals, including stainless steel. It is therefore recognized that stainless steel is not suitable for use on vessels containing HCl.

118. As a result of the leak, Defendant released an “extremely hazardous substance” into the ambient air within the meaning of CAA Section 112(r)(1), 42 U.S.C. § 7412(r)(1).

119. Fifteen employees evacuated downwind of the HCl leak and were evaluated by Emergency Response Team personnel. Fourteen employees were transported to hospitals for further evaluations.

November 2, 2014 Chlorine Release

120. At all times relevant to this Complaint, Defendant owned and operated the Chlor-Alkali Unit. The Chlor-Alkali Unit has chlorine (a toxic regulated substance) present in more than a threshold quantity as determined by 40 C.F.R. § 68.115 and is a covered process as defined by 40 C.F.R § 68.3.

121. On November 2, 2014, there was a chlorine gas leak at the Chlor-Alkali Unit and an ambient air alarm sounded.

122. The alarm set point to trigger the chlorine air monitors was 1 part per million (“ppm”).

123. Three employees responded to the alarm. One employee (“Employee 1”) checked the upper level of the unit for chlorine by using an ammonia solution in a spray bottle and inhaled chlorine gas while searching for the chlorine gas leak.

124. Handheld chlorine gas detectors were locked in the cell maintenance building and unavailable to the three employees searching for the chlorine leak.

125. Employee 1 was not wearing any respiratory protection.

126. Employee 1 was exposed to chlorine gas and required hospitalization.

October 5, 2016 Chlorine Release

127. At all times relevant to this Complaint, Defendant owned and operated the Chlor-Alkali Unit. The Chlor-Alkali Unit has chlorine (a regulated toxic substance) present in more than a threshold quantity as determined by 40 C.F.R. § 68.1115 and is a covered process as defined by 40 C.F.R. § 68.3.

128. On October 5, 2016, contractors were working in the Chlor-Alkali Unit. The contractors were issued a “General Work” permit to prep and paint in the 500 C area of the Chlor-Alkali Unit.

129. Before beginning their work, the contractors were informed that overhead work was occurring in the 500 C area of the plant and that they could not paint until the overhead work was complete.

130. The contractors were told to meet the Operations supervisor in the 500 A/B area of the Plant to complete a painting task in that area.

131. The contractor foreman confirmed with the Operations supervisor that monogoggles were required in the 500 A/B area as hydrochloric acid and chlorine were potentially present in the working environment.

132. The original work permit, which only permitted work in the 500 C area, was modified by an operator adding “500 A/B” and “valves” to the original permit.

133. The modification of the original work permit was not initialed.

134. The original permit was modified from a new equipment area to an area processing hazardous chemicals without updating the “Hazards Involved” section to list any hazardous chemicals.

135. At or about 10 a.m., the contractors began work in the 500 A/B area of the plant.

136. One item being painted was a 2” ball valve at the low point of the condensate drain leg on the chlorine feed line to the “on-line” R-501A HCl Synthesis Heater which uses hydrogen and 98% chlorine gas to produce HCl. The condensate leg, which allows condensed liquids to drain from the chlorine feed header, has a “water seal” to prevent chlorine gas from escaping into the waste water piping. The seal receives service water through the condensate leg’s 2” ball valve that is supplied from the source through ½” black poly tubing.

137. At or about 10:05 a.m. the ½” black poly tubing on the water supply to the water seal became disconnected from the compression fitting, allowing water to drain out.

138. Defendant’s investigation of the incident found that human contact was the likely cause of the disconnection of the tubing.

139. Shortly after the tubing was disconnected, chlorine gas entered into the area waste water system piping, and then to the T-522 underground waste water tank. The 2” waste water piping between the condensate leg and the T-522 tank is supposed to be sealed and vent under a slight vacuum through two 1” vents, and then to a scrubber that removes chlorine from the vent gas stream.

140. The two 1” vents were insufficient to handle the flow of chlorine gas.

141. The chlorine gas then bypassed the T-522 tank and entered the waste water system piping from the scrubber to HCl pumps. This section of piping is not sealed or vented, but connects to open surface drain hubs from the scrubber and HCl pumps.

142. Chlorine gas then was released to the atmosphere through the open drain hub.

143. Operators began to smell chlorine and told the contractors to leave the area.

144. At or about 10:17 a.m., area 500 chlorine and HCl alarms sounded in the Chlor-Alkali Control Room.

145. Fourteen individuals, including employees and contractor employees were evaluated. Eight persons were transported to a local hospital for treatment and further observation.

Claims Related to the May 2, 2013 Fire and Explosion

**FIRST CLAIM FOR RELIEF
General Duty Clause – Failure to Identify Hazards
42 U.S.C. § 7412(r)(1)**

146. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

147. On May 2, 2013, during work to remove the EPU to make room for expansion equipment at HDPE 1, Defendant attempted to sample the inner vapor space of column C212B, which contained partially-regenerated pyrophoric catalyst, Puraspec 3450. Subject to a reasonable opportunity for further investigation and discovery, as a result of the sampling activity, oxygen entered the column C212B, beginning an exothermic reaction which heated the material in the column.

148. Defendant failed to prepare a work plan or conduct a hazard assessment for the removal of the EPU.

149. The explosion and fire hazards associated with removing the EPU without a work plan or hazard assessment is a recognized hazard.

150. Defendant failed to identify, using appropriate hazard assessment techniques, the explosion and fire hazards associated with removing the EPU without a work plan. Subject to a reasonable opportunity for further investigation and discovery, the failure to identify hazards

associated with removing the EPU without a work plan continued from at least January 16, 2013 (the date Defendant completed a bid proposal for the removal of the EPU) through May 2, 2013 (the date of the fire and explosion).

151. The risk of a fire due to the ingress of air into a vessel containing Puraspec 3450 in its reduced or partially regenerated form is a recognized hazard. Defendant failed to identify, using appropriate hazard assessment techniques, the explosion and fire hazards associated with sampling column C212B, a vessel containing Puraspec 3450 in its partially regenerated form.

152. The risk of an explosion due to over pressurization from an exothermic reaction resulting from an ingress of air into a vessel containing reduced or partially regenerated Puraspec 3450 with no pressure relief alternative in place is a recognized hazard.

153. Defendant failed to identify, using appropriate hazard assessment techniques, the explosion hazard associated with isolating and blinding the pressure relief valves of columns with no pressure relief alternatives in place. Subject to a reasonable opportunity for further investigation and discovery, the failure to identify the explosion hazard associated with isolating and blinding the pressure relief valves began in January 2011 (when the isolation and blinding occurred) and continued until May 2, 2013 (the day of the fire and explosion).

154. The fire and explosion hazard was likely to cause serious physical harm or death.

155. There were technically and economically feasible means and methods of eliminating or mitigating the risks of fire or explosion associated with the removal of the EPU.

156. Had Defendant performed a risk assessment or prepared a work plan for the removal the EPU, numerous hazards would have been identified.

157. Defendant violated Section 112(r)(1) of the Act, 42 U.S.C. § 7412(r)(1), by failing to identify hazards associated with the removal of the EPU.

158. Pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), as amended, the Defendant is liable for the assessment of civil penalties for each day of violation.

SECOND CLAIM FOR RELIEF
General Duty Clause – Failure to Design and Maintain a Safe Facility
42 U.S.C. § 7412(r)(1)

159. Paragraphs 1 through 158 are realleged and incorporated herein by reference

(1) Defendant Failed to Design and Maintain a Safe Facility by
Isolating and Blinding Pressure Relief Valves

160. On or about January 2011, Defendant isolated and blinded the pressure relief valves in columns C212A and C212B of the EPU. Partially reduced Puraspec 3450 catalyst remained in the columns.

161. A pressure relief valve is used to limit or control the pressure that can build up in a system or vessel and cause an uncontrolled accidental release of hazardous materials, process upset, instrument or equipment failure, explosion, or fire. The pressure is relieved by allowing the pressurized fluid or gas to flow from the system or vessel through an orifice specifically designed for emergency duty.

162. The risk of pressure buildup in a system or vessel, which can result in a process upset, instrument or equipment failure, explosion, or fire, is a recognized hazard.

163. The hazard of over pressurization of a vessel or process can cause explosion or fire which is likely to cause death or serious injury.

164. The hazard of over pressurization of a system or vessel can be prevented or mitigated through the use of pressure relief valves.

165. Leaving the C212A and C212B column pressure relief valves in service is a technically and economically feasible action that Defendant could be expected to take.

166. The risk of fire or explosion due to the Defendant isolating and blinding the pressure relief valves, leaving no alternative pressure relief in place, continued from January 2011 until May 2, 2013.

167. The isolation and blinding of the C212A and C212B column pressure relief valves disabled the pressure relief system, leading to a significant overpressure in the C212B column and to the failure of the top dome flange gasket, which resulted in the subsequent release, explosion, and fire on May 2, 2013.

168. Had Defendant left the pressure relief valves in service, the May 2, 2013 explosion, release, and fire could have been prevented, injuries and property damage could have been minimized, and the threat to nearby operating processes could have been reduced.

169. Defendant failed to design and maintain a safe facility by isolating and blinding pressure relief valves in columns C212A and C212B.

(2) Defendant Failed to Design and Maintain a Safe Facility by

Failing to Follow Operating Procedures for the EPU – Hydrogen Injection

170. The manufacturer's operating procedures for the EPU state that if the catalyst has been used for the purification of hydrocarbons it may contain residual hydrocarbons or deposited carbon, increasing the risk of combustion.

171. Operating procedures for the EPU recommend using hydrogen to remove acetylene from the ethylene supply in the first stage. Allowing acetylene into the second stage columns can lead to the formation of copper acetylide, which is highly explosive. It can also form other polymer-like materials, which can exothermically react with reduced or partially regenerated catalyst, or cause carbon deposits to form on the catalyst.

172. Partially reduced catalyst containing copper acetylide, polymer-like material or carbon deposits may be capable of combustion.

173. The EPU was used for the purification of ethylene, a hydrocarbon, in the HDPE 1 process.

174. Subject to a reasonable opportunity for further investigation and discovery, the EPU was operated without hydrogen injection in the first stage.

175. Using hydrogen to remove acetylene from the ethylene supply is technically and economically feasible.

176. As a result, the ethylene in the vessel had extended contact with the catalyst, potentially leading to the formation of copper acetylide, polymer-like material or carbon deposits in the catalyst which increased the risk of combustion.

177. The increased risk of combustion due to the formation of copper acetylide, polymer-like material or carbon deposits in the catalyst was a recognized hazard.

178. The increased risk of combustion at the EPU is a hazard that is likely to cause serious physical harm or death.

179. Subject to a reasonable opportunity for further investigation and discovery, the risk of fire or explosion due to Defendant's failure to use a hydrogen injection in the first stage of the EPU began in September 1995 (the date the EPU was initially taken out of service) and continued until May 2, 2013 (the day of the fire and explosion).

180. Defendant failed to design and maintain a safe facility by failing to use a hydrogen injection in the first stage and by failing to maintain the EPU in a manner that would prevent releases of extremely hazardous substances so as to be safe and free of recognized hazards.

(3) Defendant Failed to Design and Maintain a Safe Facility by

Failing to Follow Operating Procedures for the EPU – Purging System with Nitrogen

181. Operating instructions for the EPU state that after taking the second stage out of service the column should be immediately purged and pressurized with nitrogen.

182. Defendant did not immediately purge the system with nitrogen after taking the second stage columns of the EPU out of service.

183. The purpose of purging the second stage columns is to prevent the ethylene from having extended contact with the catalyst which can also lead to the formation of polymer-like material or carbon deposits on the catalyst.

184. Pressurizing and purging the C212B reactor with nitrogen immediately after taking it out of service was technically and economically feasible.

185. As a result of these failures, the ethylene in the vessel had extended contact with the catalyst, leading to the formation of polymer like material or carbon deposits in the catalyst which increased the risk of combustion.

186. The increased risk of combustion due to the formation of polymer like material or carbon deposits in the catalyst was a recognized hazard.

187. The increased risk of combustion at the EPU is a hazard that is likely to cause serious physical harm or death.

188. The risk of fire or explosion due to Defendant's failure to immediately purge the system with nitrogen after taking the second stage columns of the EPU out of service or placing them in standby mode began in September 1995 (the date the EPU was taken out of service) and continued until May 2, 2013 (the day of the fire and explosion).

189. Defendant failed to design and maintain a safe facility by failing to immediately purge the system with nitrogen after taking the second stage columns of the EPU out of service or placing them in standby mode and failing to maintain the EPU in a manner that would prevent releases of extremely hazardous substances so as to be safe and free of recognized hazards.

(4) Defendant Failed to Design and Maintain a Safe Facility by

Failing to Adhere to Defendant's Policy for Out of Service Equipment

190. In 2007, Defendant developed an "Inactive – Out of Service Equipment Storage Procedure" which requires that a work order be prepared in order to have equipment placed in an inactive status. Under this procedure, the work order must require that Maintenance and Operations personnel complete an inspection of the equipment and support systems to confirm that they have been properly and safely prepared for inactive status. Under the procedure, maintenance was permitted to isolate and prepare the equipment for inactive status only after completing the required inspection.

191. The potential for fire or explosions from residual energy stored in equipment placed in standby mode or inactive status is a recognized hazard.

192. Defendant did not implement its Inactive – Out of Service Equipment Storage Procedure for the first and second stages of the EPU.

193. It was technically and economically feasible for Defendant to implement its Inactive – Out of Service Equipment Storage Procedure.

194. Had Defendant implemented the procedures set forth in the "Inactive – Out of Service Equipment Storage Procedure," Defendant would have been able to eliminate or mitigate the potential for fire or explosions from residual energy stored in the EPU.

195. Defendant failed to design and maintain a safe facility by failing to properly place the first and second stages of the EPU in inactive status and by failing to maintain the EPU in a manner that would prevent releases of extremely hazardous substances so as to be safe and free of recognized hazards. Subject to a reasonable opportunity for further investigation and discovery, this failure began in 2007 (when the Inactive – Out of Service Equipment Storage Procedure became effective) and continued until May 2, 2013 (the date of the fire and explosion).

196. As a result of Defendant's failure to design and maintain a safe facility and failure to take such steps as necessary to prevent accidental releases of extremely hazardous substances, an accidental release of an extremely hazardous substance occurred at the Facility.

197. Pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b), as amended, the Defendant is liable for the assessment of civil penalties for each day of violation.

Claims Related to the September 13, 2013 Fire

**THIRD CLAIM FOR RELIEF
Risk Management Program – Failure to Obtain Hot Work Permit
40 C.F.R. § 68.85**

198. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

199. Pursuant to 40 C.F.R. § 68.85, Defendant is required to issue a Hot Work Permit for hot work operations conducted on or near a covered process.

200. Defendant developed and implemented a Hot Work Permit Procedure, known as Procedure 06, which states that the use of equipment with an electric motor requires a Hot Work Permit.

201. An electric chainsaw has an electric motor, which is potentially spark-producing, and therefore a Hot Work Permit is required for its use on or near a covered process.

202. On September 13, 2013, operations personnel did not secure a Hot Work Permit before attempting to cut the polymer chunk on column C-301 with an electric chainsaw.

203. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.85 and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

204. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties.

FOURTH CLAIM FOR RELIEF
Risk Management Program – Failure to Implement Safe Work Practices
40 C.F.R. § 68.69(d)

205. Paragraphs 1 through 145 and 199 through 204 are realleged and incorporated herein by reference.

206. Pursuant to 40 C.F.R. § 68.69(d), Defendant was required to “develop and implement safe work practices to provide for the control of hazards during operations.” These safe work practices apply to employees and contractor employees.

207. Defendant developed and implemented a procedure governing Personal Protective Equipment known as Procedure 17.

208. Procedure 17 requires that the following items be worn when using chainsaws: hard hats, hearing protection, face shields or full-face respirators, chainsaw resistant vests, pants, shirts, gloves, metatarsal boots or hard-toe boots with attachable metatarsal protection, and full-face respirator with dust cartridges where dust is present.

209. Subject to a reasonable opportunity for further investigation and discovery, on September 13, 2013, all HDPE 2 operators working with or near the electric chainsaw were not wearing face shields or full-face respirators.

210. On September 13, 2013, Defendant failed to implement Procedure 17.

211. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.69(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

212. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties.

FIFTH CLAIM FOR RELIEF
Risk Management Program – Failure to Implement Safe Work Practices
40 C.F.R. § 68.69(d)

213. Paragraphs 1 through 145 and 199 through 212 are realleged and incorporated herein by reference.

214. Pursuant to 40 C.F.R. § 68.69(d), Defendant was required to “develop and implement safe work practices to provide for the control of hazards during operations.” These safe work practices apply to employees and contractor employees.

215. Defendant developed and implemented a Line Break Permit Procedure, known as Procedure 10.

216. Defendant defines a line break, subject to Procedure 10, to include the removal or installation of blinds as well as any penetration or opening created in a process or utility line by mechanical or other means that could release hazardous energy that presents a hazard to employees. Under Procedure 10, the removal or installation of blinds requires a line break permit.

217. When a Line Break Permit is required, Procedure 10 requires the performance of atmospheric testing prior to commencing work.

218. On September 13, 2013 at or about 7:30 a.m., Defendant took a Lower Explosive Limit (“LEL”) reading (an atmospheric test) from the bottom of the manway and issued Line Break Permit No. 56790, pursuant to Procedure 10, in order to install blinds at column C-301.

219. The installation of blinds at column C-301 started at 8:45 a.m.

220. Subject to a reasonable opportunity for further investigation and discovery, Defendant did not perform any additional LEL readings immediately preceding the installation of the blinds, in violation of Procedure 10.

221. Flammable gases can build up over time, particularly when work activities require the opening of process vessels or lines, creating an explosive atmosphere.

222. Sampling conducted after the fire on the manway just above where the incident occurred showed 319 ppm of isobutane and 160 ppm of 1-hexene.

223. Sampling conducted after the fire on the manway just below where the incident occurred showed 191 ppm of isobutene and 298 ppm of 1-hexane.

224. Had Defendant properly implemented Procedure 10 and taken the LEL reading at the proper location and immediately prior to the commencing of work, the elevated levels of flammable vapors (isobutene and 1-hexane) in the atmosphere could have been detected.

225. Defendant's incident report found that the electric chainsaw motor was the likely ignition source for the flash fire by igniting an explosive environment created from dust combined with flammable vapors.

226. On September 13, 2013, Defendant failed to implement Procedure 10.

227. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.69(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

228. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties.

Claims Related to the February 19, 2014 Cryogenic Propylene Release

**SIXTH CLAIM FOR RELIEF
Risk Management Program – Failure to Conduct Mechanical Integrity Inspections
40 C.F.R. § 68.73(d)**

229. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

230. Pursuant to 40 C.F.R. § 68.73(d), Defendant is required to inspect and test process equipment. The inspection and testing procedures must follow recognized and generally accepted good engineering practices.

231. 40 C.F.R. § 68.73(a)(2) provides that the requirements of 40 C.F.R. § 68.73(d) apply to piping systems, including piping components such as valves.

232. Subject to a reasonable opportunity for further investigation or discovery, the propylene line HC6116A-4"-9P1 (LL HC611A-4"-9P1) has been subject to 40 C.F.R. § 68.73(d) since at least 2010.

233. Defendant has no mechanical integrity inspection records for propylene line HC6116A-4"-9P1 (LL HC611A-4"-9P1), which includes the $\frac{3}{4}$ " valve, for any inspection conducted prior to February 19, 2014.

234. Subject to a reasonable opportunity for further investigation or discovery, Defendant failed to conduct a mechanical integrity inspection of line HC6116A-4"-9P1 (LL HC611A-4"-9P1) which includes the $\frac{3}{4}$ " valve, prior to the February 19, 2014 propylene release.

235. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.73(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

236. Alternatively, if Defendant did conduct mechanical integrity inspections of line HC6116A-4"-9P1 (LL HC611A-4"-9P1) prior to the February 19, 2014 release, Defendant did not document the inspection, in violation of 40 C.F.R. § 68.73(d)(4) and CAA Section 112(r)(7), 42 U.S.C. § 7412(r)(7).

237. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of each violation.

Claims Related to the July 17, 2014 Cycle Gas Release

SEVENTH CLAIM FOR RELIEF

**Risk Management Program – Failure to Conduct Mechanical Integrity Inspections
40 C.F.R. § 68.73(d)**

238. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

239. Pursuant to 40 C.F.R. § 68.73(d), Defendant is required to inspect and test process equipment. The inspection and testing procedures must follow recognized and generally accepted good engineering practices.

240. 40 C.F.R. § 68.73(a)(2) provides that the requirements of 40 C.F.R. § 68.73(d) apply to piping systems.

241. The Process Line and the HP Nitrogen Line are part of the LLDPE piping system.

242. The LLDPE piping system, including the HP Nitrogen Line, has been subject to 40 C.F.R. § 68.73(d) since at least 1999.

243. Subject to a reasonable opportunity for further investigation and discovery, Defendant failed to conduct mechanical integrity inspections of the HP Nitrogen Line, including the weld connecting the HP Nitrogen Line and the Process Line, in violation of 40 C.F.R. § 68.73(d).

244. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.73(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

245. Alternatively, subject to a reasonable opportunity for further investigation and discovery, if Defendant did conduct mechanical integrity inspections of the HP Nitrogen Line, Defendant did not follow recognized and generally accepted good engineering practices by failing to conduct the appropriate testing, in violation of 40 C.F.R. § 68.73(d)(2) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

246. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

Claims Related to the October 7, 2014 Chlorine Release

EIGHTH CLAIM FOR RELIEF

**Risk Management Program – Failure to Conduct Mechanical Integrity Inspections
40 C.F.R. § 68.73(d)**

247. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

248. Pursuant to 40 C.F.R. § 68.73(d), Defendant is required to inspect and test process equipment. The inspection and testing procedures must follow recognized and generally accepted good engineering practices.

249. The chemical sewer piping at the Chlor-Alkali Unit is process equipment and was required to be inspected and tested pursuant to 40 C.F.R. § 68.73(a)(2).

250. The Chlor-Alkali piping system, including the chemical sewer piping, has been subject to 40 C.F.R. § 68.73(d) since at least 2012.

251. Subject to a reasonable opportunity for further investigation or discovery, Defendant failed to conduct mechanical integrity inspections of the chemical sewer piping at the Chlor-Alkali Unit, in violation of 40 C.F.R. § 68.73(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

252. Alternatively, if Defendant did inspect the chemical sewer piping, Defendant failed to correct deficiencies in equipment that are outside acceptable limits before further use or in a safe and timely manner by failing to repair and replace the corroded blind and missing nuts and bolts on the chemical sewer piping, in violation of 40 C.F.R. § 68.73(d)(4) and CAA Section 112(r)(7), 42 U.S.C. § 7412(r)(7).

253. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

NINTH CLAIM FOR RELIEF
Risk Management Program – Failure to Implement Safe Work Practices
40 C.F.R. § 68.69(d)

254. Paragraphs 1 through 145 and 246 through 253 are realleged and incorporated herein by reference.

255. Pursuant to 40 C.F.R. § 68.69(d), Defendant was required to develop and implement safe work practices to provide for the control of hazards during operations. These safe work practices apply to employees and contractor employees.

256. Defendant developed and implemented Procedure 15 – Respiratory Protection Program.

257. Procedure 15 – Respiratory Protection Program states that employees must use respiratory equipment when atmospheric hazards may exist. With regard to chlorine, Procedure 15 recommends the use of a full face respirator with acid gas cartridge when chlorine levels are above 1 ppm.

258. The Chlorine Institute recommends that for tasks that have not been previously sampled and involve potential exposure to gaseous or liquid chlorine for initial line breaks, material sampling, or loading/unloading, that the worker wear a full face air purifying respirator approved for protection against chlorine.

259. Standard reference material for the industry states that “it is essential that each individual who may be exposed to chlorine carry, at all times, a respirator approved for chlorine use.”

260. The Occupational Safety and Health Administration’s (“OSHA’s”) Permissible Short Term Exposure Limit for chlorine is 1 ppm.

261. Subject to a reasonable opportunity for further investigation and discovery, those performing maintenance on the sight glass at the Chlor-Alkali Unit have a potential to be exposed to chlorine levels above 1 ppm.

262. On October 7, 2014, Operator 1 did not use or carry a respirator when working on the sight glass system.

263. Defendant failed to develop and implement adequate safe work practices by failing to require the use of a full face respirator where there was potential for exposure to chlorine above 1 ppm.

264. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.69(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

265. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

TENTH CLAIM FOR RELIEF
Risk Management Program – Failure to Provide Refresher Training
40 C.F.R. § 68.71(b)

266. Paragraphs 1 through 145 and 246 through 265 are realleged and incorporated herein by reference.

267. Pursuant to 40 C.F.R. § 68.71(b), Defendant is required to provide refresher training at least every three years to each employee involved in operating a process.

268. Operator 1 completed classroom training on November 6, 2010, passed the chlorine field qualifications test on April 5, 2011, and was approved by the Facility operations manager of the Chlor-Alkali Department on June 17, 2011.

269. Subject to a reasonable opportunity for further investigation and discovery, over three years had passed from the date that Operator 1 was certified to work as a chlorine field

operator (June 17, 2011) to the time of the October 7, 2014 incident and Defendant failed to conduct refresher training for Operator 1.

270. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.71(b) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

271. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

ELEVENTH CLAIM FOR RELIEF
Risk Management Program – Failure to Establish and Implement Written Procedures to
Maintain the On-Going Integrity of Process Equipment
40 C.F.R. § 68.73(b)

272. Paragraphs 1 through 145 and 246 through 271 are realleged and incorporated herein by reference.

273. Pursuant to 40 C.F.R. § 68.73(b), Defendant is required to establish and implement written procedures to maintain the on-going integrity of process equipment.

274. The sight glass is considered process equipment, as it is part of the Chlor-Alkali piping system.

275. Subject to a reasonable opportunity for further investigation and discovery, the sight glass has been part of the Chlor-Alkali piping system since at least 2012.

276. As of October 7, 2014, Defendant did not have a written procedure for the replacement of the seal leg sight glass.

277. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.73(b) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

278. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

Claims Related to the October 12, 2014 Hydrogen Chloride Release

TWELFTH CLAIM FOR RELIEF

**General Duty Clause – Failure to Design and Maintain a Safe Facility
40 U.S.C. § 7412(r)(1)**

279. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

280. Defendant used low grade stainless steel bolts on pressure control valve PV-521 on the HCl system.

281. The risk of corrosion to stainless steel bolts exposed to HCl is a recognized hazard.

282. Subject to a reasonable opportunity for further investigation and discovery, the risk of corrosion to the stainless steel bolts exposed to HCl began on April 8, 2011 (the last date PV-521 was replaced prior to the release) and continued until October 12, 2014 (the date of the release).

283. Occidental Chemical Corporation's Hydrochloric Acid Handbook (the "handbook") is a recognized industry resource that provides information on safety, first-aid, and the proper handling and storage of HCl.

284. The handbook was available to Defendant on October 12, 2014 and states that HCl is extremely corrosive to certain metals, including stainless steel.

285. Nickel-molybdenum-chromium alloy bolts are acceptable for use in HCl service.

286. The use of nickel-molybdenum-chromium alloy bolts is a technically and economically feasible action that Defendant could be expected to take.

287. Had Defendant used nickel-molybdenum-chromium alloy bolts in place of stainless steel bolts, the release of HCl into the ambient air on October 12, 2014 could have been prevented or mitigated.

288. As a result of Defendant's failure to design and maintain a safe facility and failure to take such steps as necessary to prevent accidental releases of extremely hazardous substances, an accidental release of an extremely hazardous substance occurred at the Facility.

289. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

Claims Related to the November 2, 2014 Chlorine Release

THIRTEENTH CLAIM FOR RELIEF

**Risk Management Program – Failure to Implement Safe Work Practices
40 C.F.R. § 68.69(d)**

290. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

291. Pursuant to 40 C.F.R. § 68.69(d), Defendant was required to develop and implement safe work practices to provide for the control of hazards during operations. These safe work practices apply to employees and contractor employees.

292. Defendant developed and implemented Procedure 15 – Respiratory Protection Program.

293. Defendant's Respiratory Protection Program states that employees must use respiratory equipment when atmospheric hazards may exist. With regard to chlorine, Procedure 15 recommends the use of a full face respirator with acid gas cartridge when chlorine levels are above 1-ppm.

294. OSHA's Permissible Short Term Exposure Limit for chlorine is 1 ppm.

295. When the ambient air alarm for chlorine sounded on November 2, 2014, an atmospheric hazard existed.

296. Subject to a reasonable opportunity for further investigation and discovery, the set point for the ambient air alarm is 1 ppm.

297. Defendant failed to implement safe work practices and adhere to its Respiratory Protection Program by failing to ensure that Employee 1 responded to the chlorine gas release with respiratory equipment.

298. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.69(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

299. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties.

FOURTEENTH CLAIM FOR RELIEF
Risk Management Program – Failure to Develop and Implement Safe Work Practices
40 C.F.R. § 68.69(d)

300. Paragraphs 1 through 145 and 291 through 299 are realleged and incorporated herein by reference.

301. Pursuant to 40 C.F.R. § 68.69(d), Defendant was required to develop and implement safe work practices to provide for the control of hazards during operations. These safe work practices apply to employees and contractor employees.

302. Defendant's Chlor-Alkali Unit's safety manual requires operators to respond to ambient air alarms with a handheld chlorine detector.

303. On November 2, 2014, handheld chlorine detectors were not available to the three employees responding to the chlorine alarm because they were located in the cell maintenance building, which was locked.

304. Defendant failed to implement safe work practices and adhere to the Chlor-Alkali Unit's safety manual by failing to make available handheld chlorine detectors for the three employees responding to the chlorine alarm.

305. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.69(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

306. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties.

Claims Related to the October 5, 2016 Chlorine Release

**FIFTEENTH CLAIM FOR RELIEF
Risk Management Program – Failure to Implement Safe Work Practices
40 C.F.R. § 68.69(d)**

307. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

308. Pursuant to 40 C.F.R. § 68.69(d), Defendant was required to develop and implement safe work practices to provide for the control of hazards during operations. These safe work practices apply to employees and contractor employees.

309. Defendant developed and implemented “Procedure 8 – General Work Permits.”

310. Procedure 8 requires operators to walk down the area covered by the General Work Permit with the workers to determine any hazards associated with the work activity.

311. On October 5, 2016, there was no operator walk down of the 500 A/B area with the contractors to determine any hazards that might be associated with the contractors’ work.

312. Procedure 8 requires that Operations personnel ensure that those working under a “general permit” know and understand the hazards of the job and the chemicals involved.

313. The “Hazards Involved” section on the general work permit issued to the contractors for work in the 500 C area was not updated to reflect additional hazards (chlorine and HCl) in the 500 A/B area.

314. Subject to a reasonable opportunity for further investigation or discovery, the Defendant did not make the contractors aware of the chlorine and HCl hazards associated with working in the 500 A/B area.

315. Defendant’s Procedure 8 states that if necessary, atmospheric testing shall be performed prior to a general work permit being issued or modified.

316. Subject to a reasonable opportunity for further investigation and discovery, atmospheric tests were not taken or updated in 500 A/B area of the Chlor-Alkali Unit.

317. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.69(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

318. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties.

SIXTEENTH CLAIM FOR RELIEF
Risk Management Program – Failure to Perform an Adequate Process Hazard Analysis
40 C.F.R. § 68.67

319. Paragraphs 1 through 145 and 308 through 318 are realleged and incorporated herein by reference.

320. Pursuant to 40 C.F.R. § 68.67, Defendant was required to perform a PHA on the HCl Synthesis process (the 500 Unit) that would identify, evaluate, and control the hazards involved in the process.

321. On October 5, 2016, the ½” black poly tubing at the HCl Synthesis was partially in the walkway and not protected from accidental contact.

322. Defendant’s PHA for the HCl Synthesis failed to identify the possible hazards associated with accidental contact with the ½” black poly tubing.

323. The loss of water due to the disconnection of the ½” black poly tubing allowed chlorine gas to breach the seal and enter sewer piping.

324. Defendant’s PHA failed to identify a scenario in which the loss of water results in the breach of the water seal and chlorine gas escapes through the sewer piping.

325. Defendant’s PHA failed to address the fact that the piping system is not completely sealed or vented but connects to open surface drain hubs from the scrubber and HCl feed pumps.

326. Defendant failed to identify, evaluate, and control all hazards in their PHA.

327. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.67 and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

328. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of each violation.

Other Claims

SEVENTEENTH CLAIM FOR RELIEF Risk Management Program Failure to Timely Implement Compliance Audit Recommendations 40 C.F.R. § 68.79(d)

329. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

330. Pursuant to 40 C.F.R. § 68.79(a), Defendant was required to certify that it had evaluated compliance with the provisions of 40 C.F.R. Part 68, Subpart D, at least every three years to verify that the procedures and practices developed under Subpart D are adequate and being followed.

331. Defendant conducted a Compliance Audit between March 2 and March 6, 2015.

332. Pursuant to 40 C.F.R. § 68.79(d), Defendant was required to promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected.

333. Defendant documented the findings, recommendations, and resulting tasks generated from the compliance audit and scheduled deadlines for the completion of each task.

334. Defendant's scheduled deadline for documenting the hazards and consequences of failure of engineering and administrative controls, item 12.c, was December 31, 2015. Defendant did not complete this task until April 8, 2016.

335. Defendant's scheduled deadline for documenting communication of PHA recommendations to operating, maintenance, and other associates, item 13, was June 30, 2015. Defendant did not complete the task until September 19, 2016.

336. Defendant did not promptly implement the compliance audit recommendations.

337. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.79(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

338. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of each violation.

EIGHTEENTH CLAIM FOR RELIEF
Risk Management Program – Failure to Timely Implement PHA Recommendations
40 C.F.R. § 68.67(e)

339. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

340. Pursuant to 40 C.F.R. § 68.67(a), Defendant was required to perform a PHA on the Chlor-Alkali Unit that would identify, evaluate, and control the hazards involved in the process. The PHA is required to be updated and revalidated every five years.

341. On May 30, 2014, Defendant completed a revalidation of the PHA for the Chlor-Alkali Unit.

342. Pursuant to 40 C.F.R. § 68.67(e), Defendant was required, among other things, to establish a system to promptly address the findings and recommendations of the team performing the PHA, assure that the recommendations are resolved in a timely manner, document what actions are to be taken, complete the actions as soon as possible, and develop a written schedule of when these actions are to be completed.

343. Defendant's written deadline for the creation of a procedure to require sampling for excess chlorine was March 30, 2015. Defendant did not complete the task until July 29, 2016.

344. Defendant's written deadline for adding a redundant temperature indicator ("TI") for temperature compensation and updating the standard operating procedure's troubleshooting guide to respond to the difference in TI was March 30, 2015. Defendant did not complete the task until July 29, 2016.

345. Defendant's written deadline to consider adding a differential temperature alarm (an alarm that indicates the divergence of two temperature readings which should be the same) between redundant temperature indicators was March 30, 2015. Defendant did not complete the task until July 27, 2016

346. Defendant's written deadline to consider adding a differential pressure alarm between two redundant Pressure Indicators ("PIs") for pressure compensation, and updating the standard operating procedure's troubleshooting guide to respond to the difference in PIs, was March 30, 2015. Defendant did not complete the task until July 28, 2016.

347. Defendant's written deadline for updating the Reactor standard operating procedures for FTCA-0100 to add a step to make sure there is no liquid Ethylene Dichloride ("EDC") in the C₂H₄ line prior to starting the C₂H₄ feed to the reactor was March 30, 2015. Defendant did not complete the task until July 27, 2016.

348. Defendant's written deadline for completing the recommendations developed in a 2008 Low Temperature Incident PHA was March 30, 2015. Defendant did not complete the task until July 28, 2016.

349. Defendant's written deadline for implementing the preventive maintenance routine to inspect for corrosion under insulation was March 30, 2015. Defendant did not complete the task until July 28, 2016.

350. Defendant failed to meet deadlines that Defendant set to address the PHA findings and recommendations related to the 2014 Chlor-Alkali PHA revalidation.

351. Defendant failed to resolve the PHA recommendations in a timely manner.

352. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.67(e) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

353. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of each violation.

NINETEENTH CLAIM FOR RELIEF
Risk Management Program – Inadequate Emergency Response Plan
40 C.F.R. § 68.95(a)(1)

354. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

355. Pursuant to 40 C.F.R. § 68.95(a)(1), Defendant was required to develop and implement an emergency response program that includes an emergency response plan, which must be maintained at the stationary source and contain (i) procedures for informing the public and local emergency response agencies about accidental releases; (ii) documentation of proper first-aid and emergency medical treatment necessary to treat accidental human exposures; and (iii) procedures and measures for emergency response after an accidental release of regulated substances.

356. Defendant has been subject to 40 C.F.R. § 68.95(a)(1) since at least June 22, 1999.

357. On November 14, 2016, EPA sent an Information Request Letter to Defendant pursuant to CAA Section 114, 42 U.S.C. § 7414, that requested, among other things, Defendant's emergency response plan which conforms to the requirements of 40 C.F.R. § 68.95(a)(1)(ii).

358. Defendant produced documentation that failed to include proper first-aid and emergency medical treatment necessary to treat accidental human exposures.

359. Defendant failed to produce an adequate emergency response plan.

360. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.95(a)(1) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

361. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of violation.

TWENTIETH CLAIM FOR RELIEF
Risk Management Program – Failure to Timely Conduct Mechanical Integrity Inspections
40 C.F.R. § 68.73(d)

362. Paragraphs 1 through 145 are realleged and incorporated herein by reference.

363. Pursuant to 40 C.F.R. § 68.73(d), Defendant was required to perform inspections and testing on process equipment. The frequency of the inspections and tests must be consistent with applicable manufacturers' recommendations and good engineering practices.

364. EPA inspected the Facility from January 26, 2015 to January 29, 2015. During the EPA inspection, Defendant provided documents which listed numerous overdue mechanical integrity inspections.

365. On November 14, 2016, EPA sent an Information Request Letter to Defendant pursuant to CAA Section 114, 42 U.S.C. § 7414.

366. EPA requested that Defendant provide information for all "overdue mechanical integrity inspections required for 40 C.F.R. § 68.73."

367. Defendant produced a document containing numerous entries of overdue mechanical integrity inspections.

368. Defendant failed to perform mechanical integrity inspections prior to their due date for certain process equipment.

369. As a result of these acts or omissions, Defendant violated 40 C.F.R. § 68.73(d) and CAA Section 112(r)(7)(E), 42 U.S.C. § 7412(r)(7)(E).

370. Pursuant to CAA Section 113(b), 42 U.S.C. § 7413(b), Defendant is liable for injunctive relief and the assessment of civil penalties for each day of each violation.

REQUEST FOR RELIEF

WHEREFORE, Plaintiff, the United States of America, respectfully requests that this Court:

- A. Enter judgment in favor of the United States and against Defendant Formosa Plastics Corporation, Texas;
- B. Assess civil penalties against Defendant Formosa Plastics Corporation, Texas in an amount of up to \$37,500 per day for each such violation occurring prior to November 2, 2015, and up to \$101,439 per day for each violation occurring after November 2, 2015.
- C. Award the United States injunctive relief pursuant to Section 113(b) of the Act, 42 U.S.C. § 7413(b); and
- D. Grant the United States any further and other relief that this Court may deem appropriate.

Respectfully submitted,

FOR THE UNITED STATES OF AMERICA

TODD KIM

Assistant Attorney General
Environment and Natural Resources Division
United States Department of Justice



Dated: 09/10/2021

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