

Exhibit 1

Reported releases of hydrogen fluoride, modified hydrogen fluoride, and hydrofluoric acid at still-operating, HF-using refineries, 1987-2025

1. 1987, Galveston Bay refinery, Texas City, Texas: A crane dropped a 50-foot section of a convection heater onto an HF tank within the alkylation unit, shearing two HF lines that ultimately released 30,000 to 53,000 pounds of HF. 4,000 people were evacuated, and hospitals treated more than 1,000 people for skin burns, lung irritation, and other ailments.
2. 1987, Torrance refinery, Torrance, California: An explosion at the refinery, due to an undetected buildup of HF acid, caused \$17 million in damage. The explosion knocked out the water mitigation system and blew out windows in 21 homes, injuring six people off-site and four workers, including one who had lung damage from inhaling gas. OSHA investigated and issued a \$4,000 fine.
3. 1988, Woods Cross refinery, Woods Cross, Utah: 1,600 pounds of HA released when an employee accidentally opened a valve on a pressurized line.
4. 1989, Joliet refinery, Channahon, Illinois: 124 pounds of HF released to the air after increased water levels sent too much HF to the process heater.
5. 1989, Torrance refinery, Torrance, California: A drop of HF acid splashed onto a construction worker, who was hospitalized with a deep burn.
6. 1990, Trainer refinery, Trainer, Pennsylvania: 150 pounds of HF released to air and 183 pounds released to sewer following a gasket failure.
7. 1990, Garyville refinery, Garyville, Louisiana: HF release.
8. 1990, Torrance refinery, Torrance, California: HF release injured three contract workers.
9. 1992, Torrance refinery, Torrance, California: Equipment failure led to the release of 32 pounds of HF.
10. 1995-97, Trainer refinery, Trainer, Pennsylvania: Four separate releases of HF acid, each of which injured a worker.

1 11. 1996, CITGO Corpus Christi refinery, Corpus Christi, Texas: HF
2 release.

3 12. 1996, CITGO Corpus Christi refinery, Corpus Christi, Texas: HF
4 release.

5 13. 1996, Torrance refinery, Torrance, California: Two employees received
6 chemical burns from HF exposure.

7 14. 1997, CITGO Corpus Christi refinery, Corpus Christi, Texas: A fire led
8 to an uncontrolled release of an unknown amount of HF. Nearby residents reported
9 exposure symptoms and vegetation damage.

10 15. 1998, Torrance refinery, Torrance, California: About 10 pounds of
11 modified HF acid released during a truck transfer.

12 16. 1999, Torrance refinery, Torrance, California: Three workers were
13 injured after a broken pipeline spilled isobutane and at least 288 pounds of HA acid
14 from the alkylation unit. Nearby schools were ordered to shelter in place.

15 17. 2001, Torrance refinery, Torrance, California: Shelter-in-place order was
16 issued after a release of modified HA acid from the alkylation unit; release lasted at
17 least 40 minutes.

18 18. 2003, St. Paul Park refinery, Saint Paul Park, Minnesota: An HF release
19 injured 14 workers.

20 19. 2003, St. Paul Park refinery, Saint Paul Park, Minnesota: A few days
21 after a refinery fire, 13 electricians working to repair the damage were all hospitalized
22 after being exposed to HF from a pump releasing hydrocarbons and HF.

23 20. 2005, Placid Refining Company, Port Allen, Louisiana: 40 pounds of HF
24 were released after an equipment failure; workers were injured.

25 21. 2005, Chalmette Refining, Chalmette, Louisiana: HF release occurred
26 after a vessel was over-pressured.

27 22. 2006, Wynnewood refinery, Wynnewood, Oklahoma: A major fire in the
28 alkylation unit resulted in an HF/HF acid release, causing \$20 million in property

1 damage and two rounds of community evacuations. At least 350 people were forced
2 to evacuate.

3 23. 2006, Memphis refinery, Memphis: Eight workers were exposed to HF
4 gas released during a maintenance shutdown, requiring all of them to be hospitalized.

5 24. 2009, Billings refinery, Billings, Montana: Equipment failure led to an
6 HF release.

7 25. 2009, Trainer refinery, Trainer, Pennsylvania: A 22-pound HF release
8 sent 13 contract workers to the hospital. At least one later sued for permanent damage
9 to his health.

10 26. 2009, CITGO Corpus Christi refinery, Corpus Christi, Texas:
11 Hydrocarbons and HF were suddenly released from the same unit. The hydrocarbons
12 ignited, leading to a fire that burned for several days.

13 27. 2009, Joliet refinery, Channahon, Illinois: One worker was hospitalized
14 after an upset in the alkylation unit released HF.

15 28. 2009, Chalmette Refining, Chalmette, Louisiana: Equipment failure led
16 to an HF release.

17 29. 2009, CITGO Corpus Christi refinery, Corpus Christi, Texas: An
18 equipment failure caused an HF and butane release and led to a fire.

19 30. 2009, Chalmette refining, Chalmette, Louisiana: 3,257 of pounds of HF
20 were released while an operator was flushing equipment in the alkylation unit. HF
21 was released into the cooling water system and, ultimately, to the Mississippi River.

22 31. 2011, Canton refinery, Canton, Ohio: Equipment failure caused an HF
23 acid release. Workers were evacuated and one worker was hospitalized.

24 32. 2011, Catlettsburg refinery, Catlettsburg, Kentucky: HF release injured
25 three workers.

26 33. 2011, Trainer refinery, Trainer Pennsylvania: HF released; worker
27 injured.

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1 34. 2011, Chalmette Refining, Chalmette, Louisiana: HF and isobutane were
2 released.

3 35. 2012, January, Flint Hills Resources, Corpus Christi, Texas: HF and
4 hydrocarbons were released due to a mechanical integrity failure.

5 36. 2012, July, Flint Hills Resources, Corpus Christi, Texas: Equipment
6 failure led to the release of HF and hydrocarbons.

7 37. 2012, Galveston Bay refinery, Texas City, Texas: HF was released due
8 to a mechanical integrity failure.

9 38. 2012, March, CITGO Corpus Christi refinery, Corpus Christi, Texas: HF
10 release took place at a flange; HF releases were reported as far back as September
11 2011. The fire burned for several days, causing multiple equipment failures that
12 triggered the release of 42,000 pounds of HF from the alkylation unit; the mitigation
13 spray system ran out of water to control the release. The line had been temporarily
14 repaired with clamps on several occasions while CITGO continued to operate.
15 Fortunately, due to weather conditions at the time, the HF cloud caused by the release
16 centered over an unpopulated shipping channel.

17 39. 2012, May, CITGO Corpus Christi refinery, Corpus Christi, Texas: 300
18 to 500 pounds of HF were released from a flange that had been leaking as far back as
19 September 2011, and been temporarily repaired with clamps several times while the
20 refinery continued to operate. The Chemical Safety Board lacked the budget to
21 complete an investigation, but noted that “[t]he continued releases experienced at this
22 facility over these three years suggest that there may be significant weaknesses in the
23 company’s dedication to the safety and health of its workers and the community.”

24 40. 2012, January, Flint Hills Resources, Corpus Christi, Texas: HF and
25 hydrocarbon released following a mechanical integrity failure.

26 41. 2012, July, Flint Hills Resources, Corpus Christi, Texas: HF and
27 hydrocarbon released following a mechanical integrity failure.
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1 42. 2012, Memphis refinery, Memphis, Tennessee: HF release killed one
2 worker, injured another worker, and injured first responders. The sight glass of a flow
3 indicator ruptured, releasing flying glass and a mixture of HF acid and propane into a
4 maintenance worker's face.

5 43. 2012, Placid Refining Company, Port Allen, Louisiana: HF released.

6 44. 2013, Canton refinery, Canton, Ohio: Hydrofluoric acid released.

7 45. 2013, CHS Laurel refinery, Laurel, Montana: HF acid and butane
8 released.

9 46. 2013, Wilmington refinery, Wilmington, California: HF release injured
10 two workers.

11 47. 2013, Placid Refining Company, Port Allen, Louisiana: HF and
12 isobutane released.

13 48. 2014, Chalmette Refining, Chalmette, Louisiana: Equipment failure in
14 the alkylation unit caused the release of 100 pounds of HF; worker injured.

15 49. 2014, Wilmington refinery, Wilmington, California: Equipment failure
16 caused an HF release; worker injured.

17 50. 2015, Wyoming refinery, Newcastle, Wyoming: Equipment failure
18 caused an HF acid release.

19 51. 2015, Sweeny refinery, Old Ocean, Texas: Equipment failure caused an
20 HF release.

21 52. 2015, January Chalmette Refining, Chalmette, Louisiana: HF acid
22 released due to an equipment failure in the alkylation unit.

23 53. 2015, March Chalmette Refining, Chalmette, Louisiana: More than ten
24 pounds of HF acid released.

25 54. 2015, Woods Cross refinery, Woods Cross, Utah: HF acid released from
26 piping connected to a storage tank.

27 55. 2016, Borger refinery, Borger, Texas: Release of 100 pounds of HF acid
28 that vaporized following a pipe failure.

1 56. 2017, Big Spring refinery, Big Spring, Texas: Employee draining HF
2 acid from a tank was splashed when the hose disconnected, hospitalized, and treated
3 for chemical burns.

4 57. 2017, April, Torrance refinery, Torrance, California: Modified HF
5 released.

6 58. 2017, December Torrance refinery, Torrance, California: Modified HF
7 released.

8 59. 2017, Wilmington Refinery, Wilmington, California: Modified HF
9 released.

10 60. 2017, Woods Cross Refinery, Woods Cross, Utah: 100 pounds of HF
11 acid released from a pipe.

12 61. 2017, Wilmington refinery, Wilmington, California: Modified HF
13 released.

14 62. 2017, Torrance refinery, Torrance, California: Modified HF released.

15 63. 2017, Ferndale refinery, Ferndale, Washington: HF acid was released
16 from the alkylation unit. Seven workers (including five contractors) were
17 hospitalized; other refinery workers were forced to shelter indoors.

18 64. 2017, Navajo refinery, Artesia, New Mexico: HF acid release injured
19 five workers.

20 65. 2018, May, Joliet refinery, Channahon, Illinois: More than 100 pounds
21 of HF released.

22 66. 2018, June, Joliet refinery, Channahon, Illinois: 100 pounds of HF
23 released.

24 67. 2018, June 2, 2018, Wilmington refinery, Wilmington, California:
25 Modified HF released.

26 68. 2018, June 18, 2018, Wilmington refinery, Wilmington, California:
27 Modified HF released.

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1 69. 2018, Valero Texas City Refinery, Texas City Texas: An explosion and
2 fire occurred, resulting in injuries to four contractors, a shelter-in-place order for
3 nearby residents, and the release of 972 pounds of HF and other contaminants,
4 including particulate matter, carbon monoxide, hydrogen sulfide, oxides of nitrogen,
5 and sulfur dioxide.

6 70. 2018, Torrance refinery, Torrance, California: Modified HF released
7 during transfer from truck to container.

8 71. 2019, Trainer refinery, Trainer, Pennsylvania: Employees exposed to HF
9 while conducting maintenance on an alkylation unit; five hospitalized.

10 72. 2019, January 19, Torrance refinery, Torrance, California: Modified HF
11 was released, projecting outward and striking a worker's face and causing exposure
12 injuries to his face, eyes, and airway/respiratory tract.

13 73. 2019, January 25, Torrance refinery, Torrance, California: Modified HF
14 released.

15 74. 2021, Galveston Bay refinery, Texas City, Texas: Pipe failure caused
16 and HF release and prompted a shelter-in-place order. Two workers were injured.

17 75. 2021, Chalmette Refining, Chalmette, Louisiana: Equipment failure
18 caused the release of 10 pounds of HF acid.

19 76. 2021, Catlettsburg refinery, Catlettsburg, Kentucky: HF acid released.

20 77. 2022, Mandan refinery, Mandan, North Dakota: Equipment malfunction
21 caused an HF acid release.

22 78. 2023, Ferndale refinery, Ferndale, Washington: Refinery reported a
23 release of 100 pounds of HF acid; later claimed less was released.

24 79. 2023, Wynnewood refinery, Wynnewood, Oklahoma: Equipment failure
25 caused the release of an unknown amount of HF acid.

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