

Emission Sources - Maximum Allowable Emission Rates

Flexible Permit Numbers 9868A and PSDTX102M7

Emission Cap Table

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
Emission Caps	See Attachment I for Source Name and Emission Point Number Index	NO _x	1,224.53	2,463.56
		SO ₂	6,620.98	2,967.16
		VOC	1,575.26	3,363.32
		CO	797.61	3,480.37
		PM	246.59	1049.50
		NH ₃	0.58	2.47
		Cl ₂	1.24	5.41
		Benzene	12.18	20.27
		H ₂ S	13.57	54.08
		HCl	0.04	0.20
		HF	0.44	1.90
Individual Emission Limits				
85B2	Unit 40 Boiler	NO _x	11.96	52.40
		CO	42.85	187.70
		VOC	3.23	14.13
		PM ₁₀	4.46	19.52
		SO ₂	18.68	81.83
29P1	Unit 29 FCCU Stack	NH ₃	9.75	42.71
		HCl	0.45	1.96
40P1	Unit 40 FCCU Stack	PM ₁₀	102.00 (8)	447.00
		PM _{2.5}	102.00 (8)	447.00
		NH ₃	9.75	42.71
		HCl	0.22	0.98

Emission Sources - Maximum Allowable Emission Rates

40H3	Unit 40 Superheater	NO _x	0.83	3.63
		SO ₂	1.14	1.88
		VOC	0.63	2.76
		CO	2.08	9.13
		PM	0.43	1.89
		PM ₁₀	0.43	1.89
		PM _{2.5}	0.43	1.89
34I1	SRU TGI	NO _x	0.19	0.82
		CO	0.32	1.38
		VOC	0.21	0.82
		PM ₁₀	0.03	0.13
		SO ₂	0.01	0.01
F-1-8	Merox Process Fugitives (5)	VOC	0.01	0.01
HFTEMP	HF Temporary Tank Process Fugitives (5)	HF	0.01	0.01
		VOC	0.01	0.02
F-28-2Ex	Unit 28 (2) Exchanger and Heater Integration Fugitives (5)	VOC	0.02	0.07
F-28-1Ex	Unit 28 (1) Exchanger and Heater Integration Fugitives (5)	VOC	0.06	0.26
F-32-CIP	Unit 32 Exchanger and Heater Integration Fugitives (5)	VOC	0.04	0.18
F-10B-Ex	Unit 10B Train Exchanger and Heater Integration Fugitives (5)	VOC	0.10	0.43
F-9-Ex	Unit 9 Exchanger and Heater Integration Fugitives (5)	VOC	0.06	0.26
F-10A-Ex	Unit 10A Exchanger and Heater Integration Fugitives (5)	VOC	0.06	0.25
F-67	Crude Unit Pump 67 Fugitives (5)	VOC	0.01	0.05
F-56-1-4-A(2&5)	West DAF	VOC	0.99	4.36
		NH ₃	0.24	1.06
		H ₂ S	1.81	7.91
F-56-1-12	Flash Mixing	VOC	0.01	0.03
		NH ₃	0.01	0.01
		H ₂ S	0.01	0.06
F-56-1-17	Flocculation	VOC	0.03	0.13
		NH ₃	0.01	0.03
		H ₂ S	0.05	0.24

Emission Sources - Maximum Allowable Emission Rates

53R4	Sulfur Loading Interim Rates (6)	PM	0.23	0.17
		PM ₁₀	0.23	0.17
		PM _{2.5}	0.23	0.17
		H ₂ S	6.93	5.06
	Sulfur Loading Final Rates (6)	PM	0.23	0.17
		PM ₁₀	0.23	0.17
		PM _{2.5}	0.23	0.17
		H ₂ S	1.80	1.32
F-34-2	T-310 Replacement Fugitives	H ₂ S	<0.01	0.01
F-34-3	U34 Degassing System Fugitives	H ₂ S	<0.01	0.02
0310	T-310 Sulfur Loading Tank Interim Rates (6)	PM	0.11	0.07
		PM ₁₀	0.11	0.07
		PM _{2.5}	0.11	0.07
		H ₂ S	4.40	2.93
	T-310 Sulfur Loading Tank Final Rates (6)	PM	0.11	0.07
		PM ₁₀	0.11	0.07
		PM _{2.5}	0.11	0.07
		H ₂ S	1.14	0.76
66FL1, 66FL2, 66FL3, & 66FL12	Flares – Routine Emissions	VOC	121.47	53.21
		NO _x	17.22	7.55
		CO	109.86	48.12
		SO ₂	100.14	43.85
		H ₂ S	1.55	0.68

Emission Sources - Maximum Allowable Emission Rates

66FL1, 66FL2, 66FL3, & 66FL12	Flares – Fuel Gas Long Scenario	VOC	121.47	141.82
		NO _x	17.22	29.96
		CO	110.11	192.91
		SO ₂	100.14	7.35
		H ₂ S	1.55	0.15
FGR-FUG	FGR Fugitives	VOC	5.20	22.79
		H ₂ S	0.01	0.01
66FL1, 66FL2, 66FL3, & 66FL12	Flares – Flare Gas MSS	VOC	121.47	35.00
		NO _x	17.22	6.13
		CO	109.86	34.30
		SO ₂	100.14	250.90
		H ₂ S	1.55	2.23
F-43WHB	Waste Heat Boiler Fugitives	SO ₂	0.01	0.01
		H ₂ S	0.01	0.01
50CDV1	Coker Drum Vent 1 (Pre Coker Vent Improvement)	VOC	78.46	10.32

Emission Sources - Maximum Allowable Emission Rates

		H ₂ S	25.78	1.69
		PM	16.49	2.26
		PM ₁₀	16.49	2.26
		PM _{2.5}	16.49	2.26
	Coker Drum Vent 1 (Post Coker Vent Improvement)	VOC	37.15	3.91
		H ₂ S	12.21	0.64
		PM	7.81	0.82
		PM ₁₀	7.81	0.82
		PM _{2.5}	7.81	0.82
50CDV2	Coker Drum Vent 2 (Pre Coker Vent Improvement)	VOC	78.46	10.32
		H ₂ S	25.78	1.69
		PM	16.49	2.26
		PM ₁₀	16.49	2.26
		PM _{2.5}	16.49	2.26
	Coker Drum Vent 2 (Post Coker Vent Improvement)	VOC	37.15	3.91
		H ₂ S	12.21	0.64
		PM	7.81	0.82
		PM ₁₀	7.81	0.82
		PM _{2.5}	7.81	0.82
50CDC1	Coker Drum 1 Cutting	VOC	15.89	3.26
		H ₂ S	2.61	0.54
50CDC2	Coker Drum 2 Cutting	VOC	15.89	3.26
		H ₂ S	2.61	0.54
50CDW	Coker Drum Water	VOC	2.78	12.18
F-50B	Coke Ejector Fugitives	VOC	0.03	0.12
40H4	Unit 40 Preheater Furnace	NO _x	2.48	10.84
		NO _x – MSS ⁽⁷⁾	2.03	0.32
		SO ₂	3.41	5.61
		VOC	1.88	8.24
		CO	3.41	14.92
		CO – MSS ⁽⁷⁾	22.30	3.48
		PM	1.29	5.64
		PM ₁₀	1.29	5.64
		PM _{2.5}	1.29	5.64

Emission Sources - Maximum Allowable Emission Rates

F-40-2	Unit 40 Preheater Fugitives	VOC	0.07	0.32
		H ₂ S	<0.01	<0.01

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources, use area name or fugitive source name.
- (3) VOC
 - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
- NO_x
 - total oxides of nitrogen
- SO₂
 - sulfur dioxide
- PM
 - total particulate matter, suspended in the atmosphere, including PM₁₀ and PM_{2.5}, as represented
- PM₁₀
 - total particulate matter equal to or less than 10 microns in diameter, including PM_{2.5}, as represented
- PM_{2.5}
 - particulate matter equal to or less than 2.5 microns in diameter
- CO
 - carbon monoxide
- NH₃
 - ammonia
- Cl₂
 - chlorine
- H₂S
 - hydrogen sulfide
- HCl
 - hydrogen chloride
- HF
 - hydrogen fluoride
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (6) Interim rates are in effect until the Unit 34 Degassing System is installed and functioning, or until December 31, 2020. Final rates shall take effect after December 31, 2020.
- (7) Indicates emission limits for NO_x and CO during periods of maintenance, start-up, and shutdown (MSS). Other pollutants shall comply with routine emission limits during periods of MSS.
- (8) Individual short-term (lb/hr) emission limits of PM₁₀ and PM_{2.5} at the Unit 40 FCCU (EPN 40P1) are authorized contingent upon evaluation of the pending application for renewal and amendment of the flexible permit (Project No. 240881, received August 24, 2015).

Date: June 28, 2019

Attachment I

Contaminants, Emission Point Numbers, and Source Names

Flexible Permit Numbers 9868A and PSDTX102M7

This table lists the emission point numbers and source names by contaminant included in the Emission CAP limit in the maximum allowable emission rate table. Any proposed change to emission points included in the Emission CAP may require an application for a modification of the facilities covered by this permit.

<u>Contaminant (3)</u>	<u>Emission Point No. (1)</u>	<u>Source Name (2)</u>
SO₂ Sources:		
	2H1	Unit 2-2 HDS Charge Heater
	2H2	Deoiler Furnace
	4H1	Unit 4 Feed Heater
	4H2	Unit 4 Dehydrator Heater
	5H1	Unit 5-A Feed Heater
	5H2	Unit 5-B Feed Heater
	5H3	Unit 5-C Feed Heater
	6H3	BHU Reduction Furnace
	6H1	Unit 6 Hydro Preheater
	7H1-4	Unit 7 Charge Furnace
	7H1-4	Unit 7 No. 1 Reheater
	7H1-4	Unit 7 No. 2 Reheater
	7H1-4	Unit 7 No. 3 Reheater
	9H1	Crude Oil Heater
	10H1	Crude Oil Heater
	12H1	Mol Sieve Regen Gas Heater
	19H3	19.1 Naphtha HDS Chg Heater
	19H5	19.1 No. 1 Reboiler
	19H5	19.1 No. 2 Reboiler
	19H6	19.2 Platformer Reheater No. 1
	19B1/19H1	19.2 Charge Furnace
	19B1/19H2	19.2 No. 2 Reheater
	19B1/19H2	19.2 No. 3 Reheater
	19B2/19H4	19.3 Charge Furnace
	19B2/19H4	19.3 Frac Feed Furnace
	22H1	Alky Reboiler Furnace
	26H1	Unit 26 DeC4 Reboiler
	28H1	Unit 28 Charge Heater
	29H4	Unit 29 DeC4 Reboiler
	36H1	HDS Unit Charge Heater
	40H1	Unit 40 Superheater No. 1
	41H1 (PSD)	Unit 41 Reformer Furnace
	42H1 (PSD)	Unit 42 Reactor Chg Heater
	42H2 (PSD)	Unit 42 Reactor Chg Heater
	42H3 (PSD)	Unit 42 Fract Feed Heater
	50H1	Unit 50 Charge Heater

Contaminants, Emission Point Numbers, and Source Names

51H1	Unit 51 Charge Heater
98H1	Unit 98 Reformer Furnace
7E1	Unit 7 Plat Engine No. 1
7E2	Unit 7 Plat Engine No. 2
7E3	Unit 7 Plat Engine No. 3
7E4	Unit 7 Plat Engine No. 4
7E5	Unit 7 Plat Engine No. 5
7E6	Unit 7 Plat Engine No. 6
12E1	Engine
12E2	Engine
12E3	Engine
12E4	Engine
12E5	Engine
12E6	Engine
12E7	Engine
93E1	Engine No. 37
93E2	Engine No. 38
29P1	Unit 29 FCCU Stack
85B2 (PSD)	Unit 40 Boiler Stack (8/06)
40P1	Unit 40 FCCU Stack
34I1	SRU Incinerator
43I1 (PSD)	SCOT Unit Incinerator
66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL6	H ₂ S Emergency Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare
50HT1	Coker Heater Tank 1
50HT2	Coker Heater Tank 2
50HT3	Coker Heater Tank 3
FWP1-5	Fire Water Pump Engines

VOC Sources:

2H1	Unit 2-2 HDS Charge Heater
2H2	Deoiler Furnace
4H1	Unit 4 Feed Heater
4H2	Unit 4 Dehydrator Heater
5H1	Unit 5-A Feed Heater
5H2	Unit 5-B Feed Heater
5H3	Unit 5-C Feed Heater
6H3	BHU Reduction Furnace

Contaminants, Emission Point Numbers, and Source Names

6H1	Unit 6 Hydro Preheater
7H1-4	Unit 7 Charge Furnace
7H1-4	Unit 7 No. 1 Reheater
7H1-4	Unit 7 No. 2 Reheater
7H1-4	Unit 7 No. 3 Reheater
9H1	Crude Oil Heater
10H1	Crude Oil Heater
12H1	Mol Sieve Regen Gas Heater
19H3	19.1 Naphtha HDS Chg Heater
19H5	19.1 No. 1 Reboiler
19H5	19.1 No. 2 Reboiler
19H6	19.2 Platformer Reheater No. 1
19B1/19H1	19.2 Charge Furnace
19B1/19H2	19.2 No. 2 Reheater
19B1/19H2	19.2 No. 3 Reheater
19B2/19H4	19.3 Charge Furnace
19B2/19H4	19.3 Frac Feed Furnace
22H1	Alky Reboiler Furnace
26H1	Unit 26 DeC4 Reboiler
28H1	Unit 28 Charge Heater
29H4	Unit 29 DeC4 Reboiler
36H1	HDS Unit Charge Heater
40H1	Unit 40 Superheater No. 1
41H1 (PSD)	Unit 41 Reformer Furnace
42H1 (PSD)	Unit 42 Reactor Chg Heater
42H2 (PSD)	Unit 42 Reactor Chg Heater
42H3 (PSD)	Unit 42 Fract Feed Heater
50H1	Unit 50 Charge Heater
51H1	Unit 51 Charge Heater
50HT1	Coker Heater Tank 1
50HT2	Coker Heater Tank 2
50HT3	Coker Heater Tank 3
98H1	Unit 98 Reformer Furnace
7E1	Unit 7 Plat Engine No. 1
7E2	Unit 7 Plat Engine No. 2
7E3	Unit 7 Plat Engine No. 3
7E4	Unit 7 Plat Engine No. 4
7E5	Unit 7 Plat Engine No. 5
7E6	Unit 7 Plat Engine No. 6
12E1	Engine
12E2	Engine
12E3	Engine

Contaminants, Emission Point Numbers, and Source Names

12E4	Engine
12E5	Engine
12E6	Engine
12E7	Engine
93E1	Engine No. 37
93E2	Engine No. 38
FWP1-5	Fire Water Pump Engines
53R1	Refinery Tank Car Loading
53T1	Refy Tank Truck Loading
53R2	Tank Car Tracks 1 and 2
53R3	Tank Car Tracks 3 and 4
53T2	South Tank Truck Loading
56-4	Truck Loading and Fugitives
29P1	Unit 29 FCCU Stack
85B2 (PSD)	Unit 40 Boiler (8/06)
40P1	Unit 40 FCCU Stack
34I1	SRU Incinerator
43I1 (PSD)	SCOT Unit Incinerator
66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL6	H ₂ S Emergency Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare
53FL1	Thermal Oxidation Unit
F-1	Unit 1 Fugitives
F-1-6	Unit 1.6 Fugitives
F-1-7	Unit 1.7 Fugitives
F-2	Unit 2 Columns
F-2-1	Unit 2.2 Fugitives
F-2-5	Fractionators
F-4	Butane Isom Fugitives
F-Tier 3	Fugitives - Tier 3 Project
F-5	Pentane Isom Fugitives
F-6	Hexane Isom Fugitives
F-7	Platformer
F-9	Unit 9 Fugitives
F-10	Unit 10 Fugitives
F-11	Deethanizer Unit Fug
F-12	Cryogenic Gas Plant Fug
F-13	Clean-Up Unit Fug
F-19-1	Naphtha HDS Fugitives

Contaminants, Emission Point Numbers, and Source Names

F-19-2	Reformer Fugitives
F-19-3	Distillate HDS Fugitives
F-22	HF Alkylation Fugitives
F-23	St Run Fract Fugitives
F-26	HO FCCU Fract Fugitives
F-28	Unit 28 Fugitives
F-29	Gas Oil FCCU 29 Fugitives
F-32	Unit 32 Fugitives
F-34	Sulfur Recovery Unit Fug
F-35	Unit 35 Fugitives
F-36	Unit 36 Fugitives
F-40	Heavy Oil FCCU Fugitives
F-40-3	Unit 40 Superheater Fugitives
F-41	Fugitives
F-42	GOHDS Unit 42 Fugitives
F-43-1	Sulfur Handling/Storage
F-44	Unit 44 Fugitives
F-50	Unit 50 Fugitives
F-51	Unit 51 Fugitives
F-53-1	Refinery Loading Fugitives
F-53-2	South Loading Rack
F-55	Air Compressor Fugitives
F-56	Unit 56 Fugitives
F-66-1	Ref. Flare Area Fugitives
F-66-2	South Flare Fug
F-66-3	GOHDS/Cat Area Fugitives
F-68-1a	GOHDS Storage Fugitives
F-68-1e	E. Refinery Storage Fugitives
F-68-1n	N. Refinery Storage Fugitives
F-68-1r	Rocky Station Fugitives
F-68-1s	S. Refinery Storage Fugitives
F-68-1t	Taubman Yard Fugitives
F-68-1w	W. Refinery Storage Fugitives
F-68-2n	N. Coble Storage Fugitives
F-68-2s	S. Coble Storage Fugitives
F-68-3	West Storage Fugitives
F-68-5	Gasoline Blending System
F-81	Refinery Boilers
F-82	South Boilers
F-85-2	Unit 40 Boiler Fugitives
F-98	SMR Fugitives
F-54-C10	Cooling Twr (Refy No. 9)

Contaminants, Emission Point Numbers, and Source Names

F-54-C11	Cooling Twr (Refy No. 3)
F-54-C12	Cooling Twr (Mar No. 12)
F-54-C13	Cooling Twr (Prt No. 14)
F-54-C14	Cooling Twr (Mar No. 15)
F-54-C15	Cooling Twr (Prt No. 16)
F-54-C16	Cooling Twr (Prt No. 18)
F-54-C17	Cooling Twr (Refy No. 8)
F-54-C18	Cooling Twr (Refy No. 13)
F-54-C19	Cooling Twr (Refy No. 10)
F-54-C21	Cooling Twr (Vacuum Unit)
F-54-C2	Cool Twr (Ecodyne No. 9)
F-54-C20	Cooling Twr (GOHDS No. 17)
F-54-C3	Cooling Twr (SF No. 11)
F-54-C4	Cooling Twr (Mar No. 13)
F-54-C6	Cooling Twr (Mar No. 10)
F-54-C7	Cooling Twr (Refy No. 2)
F-54-C8	Cooling Twr (Refy No. 4)
F-54-C9	Cooling Twr (Refy No. 7)
F-56-1-1	West Sump
F-56-1-3	North Sump
F-56-1-4-A	Refy Oil/H2O Separators
F-56-1-6	Storm Water System
F-56-2	Dixon Creek WWTP
F-56-1-5	Hazardous Waste Impoundment
0109	Tank Storage
0110	Tank Storage
0111	Tank Storage
0202	Tank Storage
0401	Tank Storage
0511	Tank Storage
0514	Tank Storage
0552	Tank Storage
0562	Tank Storage
0572	Tank Storage
0573	Tank Storage
1001	Tank Storage
1002	Tank Storage
1003	Tank Storage
1006	Tank Storage
1007	Tank Storage
1012	Tank Storage
1013	Tank Storage

Contaminants, Emission Point Numbers, and Source Names

1064	Tank Storage
1067	Tank Storage
1163	Tank Storage
1164	Tank Storage
1165	Tank Storage
1522	Tank Storage
2072	Tank Storage
2510	Tank Storage
2553	Tank Storage
2571	Tank Storage
2572	Tank Storage
2575	Tank Storage
2576	Tank Storage
2577	Tank Storage
2578	Tank Storage
2579	Tank Storage
2580	Tank Storage
2670	Tank Storage
2672	Tank Storage
2673	Tank Storage
2674	Tank Storage
2675	Tank Storage
2676	Tank Storage
2677	Tank Storage
2678	Tank Storage
3001	Tank Storage
3002	Tank Storage
3003	Tank Storage
4030	Tank Storage
5001SCRUB	Tank Storage
5505	Tank Storage
5508	Tank Storage
5511	Tank Storage
5520	Tank Storage
5521	Tank Storage
5525	Tank Storage
5531	Tank Storage
5532	Tank Storage
5536	Tank Storage
5537	Tank Storage
5539	Tank Storage
5540	Tank Storage

Contaminants, Emission Point Numbers, and Source Names

5541	Tank Storage
5542	Tank Storage
5543	Tank Storage
5544	Tank Storage
5545	Tank Storage
5548	Tank Storage
5550	Tank Storage
5551	Tank Storage
5553	Tank Storage
5554	Tank Storage
5555	Tank Storage
5556	Tank Storage
5557	Tank Storage
5558	Tank Storage
5559	Tank Storage
5560	Tank Storage
5578	Tank Storage
5580	Tank Storage
5583	Tank Storage
5584	Tank Storage
5587	Tank Storage
5588	Tank Storage
5589	Tank Storage
5590	Tank Storage
5591	Tank Storage
5592	Tank Storage
5593	Tank Storage
5596	Tank Storage
5597	Tank Storage
5598	Tank Storage
5599	Tank Storage
8001	Tank Storage
8002	Tank Storage
8010	Tank Storage
8011	Tank Storage
8012	Tank Storage
8013	Tank Storage
8014	Tank Storage
8015	Tank Storage
8031	Tank Storage
8032	Tank Storage
8033	Tank Storage

Contaminants, Emission Point Numbers, and Source Names

8034	Tank Storage
9200	Tank Storage
9201	Tank Storage
9202	Tank Storage
9500	Tank Storage
9501	Tank Storage
9502	Tank Storage
9503	Tank Storage
9504	Tank Storage
9700	Tank Storage
9701	Tank Storage
9702	Tank Storage

NO_x Sources:

2H1	Unit 2-2 HDS Charge Heater
2H2	Deoiler Furnace
4H1	Unit 4 Feed Heater
4H2	Unit 4 Dehydrator Heater
5H1	Unit 5-A Feed Heater
5H2	Unit 5-B Feed Heater
5H3	Unit 5-C Feed Heater
6H3	BHU Reduction Furnace
6H1	Unit 6 Hydro Preheater
7H1-4	Unit 7 Charge Furnace
7H1-4	Unit 7 No. 1 Reheater
7H1-4	Unit 7 No. 2 Reheater
7H1-4	Unit 7 No. 3 Reheater
9H1	Crude Oil Heater
10H1	Crude Oil Heater
12H1	Mol Sieve Regen Gas Heater
19H3	19.1 Naphtha HDS Chg Htr
19H5	19.1 No. 1 Reboiler
19H5	19.1 No. 2 Reboiler
19B1/19H1	19.2 Charge Furnace
19H6	19.2 Platformer Reheater No. 1
19B1/19H2	19.2 No. 2 Reheater
19B1/19H2	19.2 No. 3 Reheater
19B2/19H4	19.3 Charge Furnace
19B2/19H4	19.3 Frac Feed Furnace
22H1	Alky Reboiler Furnace
26H1	Unit 26 DeC4 Reboiler
28H1	Unit 28 Charge Heater

Contaminants, Emission Point Numbers, and Source Names

29H4	Unit 29 DeC4 Reboiler
36H1	HDS Unit Charge Heater
40H1	Unit 40 Superheater No. 1
41H1 (PSD)	Unit 41 Reformer Furnace
42H1 (PSD)	Unit 42 Reactor Chg Heater
42H2 (PSD)	Unit 42 Reactor Chg Heater
42H3 (PSD)	Unit 42 Fract Feed Heater
50H1	Unit 50 Charge Heater
51H1	Unit 51 Charge Heater
50HT1	Coker Heater Tank 1
50HT2	Coker Heater Tank 2
50HT3	Coker Heater Tank 3
98H1	Unit 98 Reformer Furnace
7E1	Unit 7 Plat Engine No. 1
7E2	Unit 7 Plat Engine No. 2
7E3	Unit 7 Plat Engine No. 3
7E4	Unit 7 Plat Engine No. 4
7E5	Unit 7 Plat Engine No. 5
7E6	Unit 7 Plat Engine No. 6
12E1	Engine
12E2	Engine
12E3	Engine
12E4	Engine
12E5	Engine
12E6	Engine
12E7	Engine
93E1	Engine No. 37
93E2	Engine No. 38
FWP1-5	Fire Water Pump Engines
29P1	Unit 29 FCCU Stack
85B2 (PSD)	Unit 40 Boiler (8/06)
40P1	Unit 40 FCCU Stack
34I1	SRU Incinerator
43I1 (PSD)	SCOT Unit Incinerator
66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL6	H ₂ S Emergency Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare

CO Sources:

Contaminants, Emission Point Numbers, and Source Names

2H1	Unit 2-2 HDS Charge Htr
2H2	Deoiler Furnace
4H1	Unit 4 Feed Heater
4H2	Unit 4 Dehydrator Heater
5H1	Unit 5-A Feed Heater
5H2	Unit 5-B Feed Heater
5H3	Unit 5-C Feed Heater
6H3	BHU Reduction Furnace
6H1	Unit 6 Hydro Preheater
7H1-4	Unit 7 Charge Furnace
7H1-4	Unit 7 No. 1 Reheater
7H1-4	Unit 7 No. 2 Reheater
7H1-4	Unit 7 No. 3 Reheater
9H1	Crude Oil Heater
10H1	Crude Oil Heater
12H1	Mol Sieve Regen Gas Heater
19H3	19.1 Naphtha HDS Chg Htr
19H5	19.1 No. 1 Reboiler
19H5	19.1 No. 2 Reboiler
19B1/19H1	19.2 Charge Furnace
19H6	19.2 Platformer Reheater No. 1
19B1/19H2	19.2 No. 2 Reheater
19B1/19H2	19.2 No. 3 Reheater
19B2/19H4	19.3 Charge Furnace
19B2/19H4	19.3 Frac Feed Furnace
22H1	Alky Reboiler Furnace
26H1	Unit 26 DeC4 Reboiler
28H1	Unit 28 Charge Heater
29H4	Unit 29 DeC4 Reboiler
36H1	HDS Unit Charge Heater
40H1	Unit 40 Superheater No. 1
41H1 (PSD)	Unit 41 Reformer Furnace
42H1 (PSD)	Unit 42 Reactor Chg Htr
42H2 (PSD)	Unit 42 Reactor Chg Htr
42H3 (PSD)	Unit 42 Fract Feed Heater
50H1	Unit 50 Charge Heater
51H1	Unit 51 Charge Heater
50HT1	Coker Heater Tank 1
50HT2	Coker Heater Tank 2
50HT3	Coker Heater Tank 3
98H1	Unit 98 Reformer Furnace
7E1	Unit 7 Plat Engine No. 1

Contaminants, Emission Point Numbers, and Source Names

7E2	Unit 7 Plat Engine No. 2
7E3	Unit 7 Plat Engine No. 3
7E4	Unit 7 Plat Engine No. 4
7E5	Unit 7 Plat Engine No. 5
7E6	Unit 7 Plat Engine No. 6
12E1	Engine
12E2	Engine
12E3	Engine
12E4	Engine
12E5	Engine
12E6	Engine
12E7	Engine
93E1	Engine No. 37
93E2	Engine No. 38
FWP1-5	Fire Water Pump Engines
29P1	Unit 29 FCCU Stack
85B2 (PSD)	Unit 40 Boiler (8/06)
40P1	Unit 40 FCCU Stack
34I1	SRU Incinerator
43I1 (PSD)	SCOT Unit Incinerator
66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL6	H ₂ S Emergency Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare

PM Sources:

F-54-C21	Cooling Twr (Vacuum Unit)
2H1	Unit 2-2 HDS Charge Htr
2H2	Deoiler Furnace
4H1	Unit 4 Feed Heater
4H2	Unit 4 Dehydrator Heater
5H1	Unit 5-A Feed Heater
5H2	Unit 5-B Feed Heater
5H3	Unit 5-C Feed Heater
6H3	BHU Reduction Furnace
6H1	Unit 6 Hydro Preheater
7E1	Unit 7 Plat Engine No. 1
7E2	Unit 7 Plat Engine No. 2
7E3	Unit 7 Plat Engine No. 3
7E4	Unit 7 Plat Engine No. 4

Contaminants, Emission Point Numbers, and Source Names

7E5	Unit 7 Plat Engine No. 5
7E6	Unit 7 Plat Engine No. 6
7H1-4	Unit 7 Charge Furnace
7H1-4	Unit 7 No. 1 Reheater
7H1-4	Unit 7 No. 2 Reheater
7H1-4	Unit 7 No. 3 Reheater
9H1	Crude Oil Heater
10H1	Crude Oil Heater
12E1	Engine No. 41
12E2	Engine No. 42
12E3	Engine No. 43
12E4	Engine No. 44
12E5	Engine No. 45
12E6	Engine No. 46
12E7	Engine No. 47
FWP1-5	Fire Water Pump Engines
12H1	Mol Sieve Regen Gas Heater
19H3	19.1 Naphtha HDS Chg Heater
19H5	19.1 No. 1 Reboiler
19H5	19.1 No. 2 Reboiler
19B1/19H1	19.2 Charge Furnace
19H6	19.2 Platformer Reheater No. 1
19B1/19H2	19.2 No. 2 Reheater
19B1/19H2	19.2 No. 3 Reheater
19B2/19H4	19.3 Charge Furnace
19B2/19H4	19.3 Frac Feed Furnace
22H1	Alky Reboiler Furnace
26H1	Unit 26 DeC4 Reboiler
28H1	Unit 28 Charge Heater
29H4	Unit 29 DeC4 Reboiler
36H1	HDS Unit Charge Heater
40H1	Unit 40 Superheater No. 1
41H1 (PSD)	Unit 41 Reformer Furnace
42H1 (PSD)	Unit 42 Reactor Chg Heater
42H2 (PSD)	Unit 42 Reactor Chg Heater
42H3 (PSD)	Unit 42 Fract Feed Heater
50H1	Unit 50 Charge Heater
51H1	Unit 51 Charge Heater
50HT1	Coker Heater Tank 1
50HT2	Coker Heater Tank 2
50HT3	Coker Heater Tank 3
98H1	Unit 98 Reformer Furnace

Contaminants, Emission Point Numbers, and Source Names

29P1	Unit 29 FCCU Stack
85B2 (PSD) (4)	Unit 40 Boiler (8/06)
40P1	Unit 40 FCCU Stack
93E1	Engine No. 37
93E2	Engine No. 38
93E4	Engine No. 40
34I1	SRU Incinerator
43I1 (PSD)	SCOT Unit Incinerator
KG47	Sulfur Tank
F-50A	Coke Handling Fugitives
VF-1030	PAC Silo
VF-2030	PAC Silo

Benzene Sources:

66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL6	H ₂ S Emergency Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare
53T1	Refy Tank Truck Loading
53R2	Tank Car Tracks 1 and 2
53R3	Tank Car Tracks 3 and 4
53T2	South Tank Truck Loading
F-1	Unit 1 Fugitives
F-2	Unit 2 Columns
F-2-1	Unit 2.2 Fugitives
F-2-5	South Fractionators
F-5	Pentane Isom Fugitives
F-6	Hexane Isom Fugitives
F-7	Platformer
F-9	Unit 9 Fugitives
F-10	Unit 10 Fugitives
F-11	Deethanizer Unit Fug
F-12	Cryogenic Gas Plant Fug
F-13	Clean-Up Unit Fug
F-19-1	Naphtha HDS Fugitives
F-19-2	Reformer Fugitives
F-23	St Run Fract Fugitives
F-26	HO FCCU Fract Fugitives
F-28	Unit 28 Fugitives

Contaminants, Emission Point Numbers, and Source Names

F-29	Gas Oil FCCU 29 Fugitives
F-32	Unit 32 Fugitives
F-40	Heavy Oil FCCU Fugitives
F-42	GOHDS Unit 42 Fugitives
F-44	Unit 44 Fugitives
F-53-1	Refinery Loading Fugitives
F-53-2	South Loading Rack
F-54-C2	Cool Twr (Ecodyne No. 9)
F-54-C3	Cooling Tower (Santa Fe No. 11)
F-54-C4	Cooling Twr (Mar No. 13)
F-54-C6	Cooling Twr (Mar No. 10)
F-54-C7	Cooling Twr (Refy No. 2)
F-54-C8	Cooling Twr (Refy No. 4)
F-54-C9	Cooling Twr (Refy No. 7)
F-54-C10	Cooling Twr (Refy No. 9)
F-54-C11	Cooling Twr (Refy No. 3)
F-54-C12	Cooling Twr (Mar No. 12)
F-54-C13	Cooling Twr (Prt No. 14)
F-54-C14	Cooling Twr (Mar No. 15)
F-54-C15	Cooling Twr (Prt No. 16)
F-54-C16	Cooling Twr (Prt No. 18)
F-54-C17	Cooling Twr (Refy No. 8)
F-54-C18	Cooling Twr (Refy No. 13)
F-54-C19	Cooling Twr (Refy No. 10)
F-54-C21	Cooling Twr (Vacuum Unit)
F-54-C20	Cooling Twr (GOHDS No. 17)
F-56-1-1	West Sump
F-56-1-3	North Sump
F-56-1-4-A	Refy Oil/H2O Separators
F-56-1-6	Storm Water System
F-56-2	Dixon Creek WWTP
F-56-1-5	Hazardous Waste Impoundment
F-56	Unit 56 Fugitives
F-66-1	Ref. Flare Area Fugitives
F-66-2	South Flare Fug
F-66-3	GOHDS/Cat Area Fugitives
F-68-1a	GOHDS Storage Fugitives
F-68-1e	E. Refinery Storage Fugitives
F-68-1n	N. Refinery Storage Fugitives
F-68-1r	Rocky Station Fugitives
F-68-1s	S. Refinery Storage Fugitives
F-68-1t	Taubman Yard Fugitives

Contaminants, Emission Point Numbers, and Source Names

F-68-1w	W. Refinery Storage Fugitives
F-68-2n	N. Coble Storage Fugitives
F-68-2s	S. Coble Storage Fugitives
F-68-3	West Storage Fugitives
F-68-5	Gasoline Blending System
F-85-2	Unit 40 Boiler Fugitives
0111	Tank Storage
0202	Tank Storage
0401	Tank Storage
0511	Tank Storage
0514	Tank Storage
0562	Tank Storage
0572	Tank Storage
0573	Tank Storage
1001	Tank Storage
1002	Tank Storage
1003	Tank Storage
1006	Tank Storage
1007	Tank Storage
1064	Tank Storage
1163	Tank Storage
1164	Tank Storage
1165	Tank Storage
1522	Tank Storage
2072	Tank Storage
2510	Tank Storage
2553	Tank Storage
2575	Tank Storage
2576	Tank Storage
2577	Tank Storage
2579	Tank Storage
2580	Tank Storage
2673	Tank Storage
3001	Tank Storage
3002	Tank Storage
4030	Tank Storage
5505	Tank Storage
5521	Tank Storage
5532	Tank Storage
5550	Tank Storage
5551	Tank Storage
5553	Tank Storage

Contaminants, Emission Point Numbers, and Source Names

5554	Tank Storage
5555	Tank Storage
5556	Tank Storage
5557	Tank Storage
5558	Tank Storage
5559	Tank Storage
5578	Tank Storage
5580	Tank Storage
5583	Tank Storage
5584	Tank Storage
5591	Tank Storage
5597	Tank Storage
5599	Tank Storage
8001	Tank Storage
8002	Tank Storage
8013	Tank Storage
8031	Tank Storage
8032	Tank Storage
8034	Tank Storage
9201	Tank Storage
9500	Tank Storage
9501	Tank Storage
9502	Tank Storage
9503	Tank Storage

H₂S Sources:

34I1	SRU Incinerator
43I1	SCOT Unit Incinerator
66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL6	H ₂ S Emergency Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare
F-1-6	Unit 1.6 Fugitives
F-2-1	Unit 2 Fugitives
F-5	Pentane Isom Fugitives
F-7	Platformer
F-9	Unit 9 Fugitives
F-10	Unit 10 Fugitives
F-11	Deethanizer Unit Fug
F-12	Cryogenic Gas Plant Fug

Contaminants, Emission Point Numbers, and Source Names

F-19-1	Naphtha HDS Fugitives
F-19-3	Distillate HDS Fugitives
F-23	St Run Fract Fugitives
F-26	HO FCCU Fract Fugitives
F-28	Unit 28 Fugitives
F-29	Gas Oil FCCU 29 Fugitives
F-32	Unit 32 Fugitives
F-34	Sulfur Recovery Unit Fug
F-35	Unit 35 Fugitives
F-36	Unit 36 Fugitives
F-40	Heavy Oil FCCU Fugitives
F-40-3	Superheater 40 Fugitives
F-41	Fugitives
F-Tier 3	Fugitives - Tier 3 Project
F-42	GOHDS Unit 42 Fugitives
F-43-1	Sulfur Handling/Storage
F-44	Fugitives
F-56-1-4-A	Refy Oil/H2O Separators
F-56-2	Dixon Creek WWTP
KG47	Tank Storage
2530	Tank Storage
3003	Tank Storage
F-53-1	Refinery Loading Fugitives
F-53-2	South Loading Rack
F-66-1	Ref. Flare Area Fugitives
F-66-2	South Flare Fug
F-66-3	GOHDS/Cat Area Fugitives
F-68-1a	GOHDS Storage Fugitives
F-68-1e	E. Refinery Storage Fugitives
F-68-1n	N. Refinery Storage Fugitives
F-68-1r	Rocky Station Fugitives
F-68-1s	S. Refinery Storage Fugitives
F-68-1t	Taubman Yard Fugitives
F-68-1w	W. Refinery Storage Fugitives
F-68-2n	N. Coble Storage Fugitives
F-68-2s	S. Coble Storage Fugitives
F-68-3	West Storage Fugitives
F-68-5	Gasoline Blending System
F-81	Refinery Boilers
F-82	South Boilers
F-85-2	Unit 40 Boiler Fugitives

Contaminants, Emission Point Numbers, and Source Names

NH₃ Sources:

F-56-1-4-A	Refy Oil/H ₂ O Separators
F-56-2	Dixon Creek WWTP
3003	Tank Storage
F-29	Gas Oil FCCU 29 Fugitives
F-32	Unit 32 Fugitives
F-40	Heavy Oil FCCU Fugitives
F-42	GOHDS Unit 42 Fugitives
F-43-1	Sulfur Handling/Storage
F-44	Fugitives
F-53-1	Refinery Loading Fugitives
F-53-2	South Loading Rack
F-66-1	Ref. Flare Area Fugitives
F-66-2	South Flare Fug
F-66-3	GOHDS/Cat Area Fugitives
F-68-1a	GOHDS Storage Fugitives
F-68-1e	E. Refinery Storage Fugitives
F-68-1n	N. Refinery Storage Fugitives
F-68-1r	Rocky Station Fugitives
F-68-1s	S. Refinery Storage Fugitives
F-68-1t	Taubman Yard Fugitives
F-68-1w	W. Refinery Storage Fugitives
F-68-2n	N. Coble Storage Fugitives
F-68-2s	S. Coble Storage Fugitives
F-68-3	West Storage Fugitives
F-68-5	Gasoline Blending System
F-85-2	Unit 40 Boiler Fugitives
F-98	SMR Fugitives
29P1	Unit 29 FCCU Stack
40P1	Unit 40 FCCU Stack

HCl Sources:

66FL1	Refinery East HC Flare
66FL2	Refinery West HC Flare
66FL3	Refinery Cat Flare
66FL12	GOHDS HC Flare
66FL13	GOHDS Emergency Sulfur Flare
F-54-C2	Cooling Tower (Ecodyne No. 9)
F-54-C3	Cooling Tower (Santa Fe No. 11)
F-54-C4	Cooling Tower (Marley No. 13)
F-54-C6	Cooling Tower (Marley No. 10)

Contaminants, Emission Point Numbers, and Source Names

F-54-C7	Cooling Tower (No. 2 Refinery)
F-54-C8	Cooling Tower (No. 4 Refinery)
F-54-C9	Cooling Tower (No. 7 Refinery)
F-54-C10	Cooling Tower (No. 9 Refinery)
F-54-C11	Cooling Tower (No. 3 Refinery)
F-54-C12	Cooling Tower (Marley No. 12)
F-54-C13	Cooling Tower (Pritchard No. 14)
F-54-C14	Cooling Tower (Marley No. 15)
F-54-C15	Cooling Tower (Pritchard No. 16)
F-54-C16	Cooling Tower (Pritchard No. 18)
F-54-C17	Cooling Tower (No. 8 Refinery)
F-54-C18	Cooling Tower (No. 9 Refinery)
F-54-C19	Cooling Tower (No. 10 Refinery)
F-54-C20	Cooling Tower (GOHDS No. 17)
F-54-C21	Cooling Tower (Vacuum Unit)
F-53-1	Refinery Loading Fugitives
F-53-2	South Loading Rack
F-66-1	Ref. Flare Area Fugitives
F-66-2	South Flare Fug
F-66-3	GOHDS/Cat Area Fugitives
F-68-1a	GOHDS Storage Fugitives
F-68-1e	E. Refinery Storage Fugitives
F-68-1n	N. Refinery Storage Fugitives
F-68-1r	Rocky Station Fugitives
F-68-1s	S. Refinery Storage Fugitives
F-68-1t	Taubman Yard Fugitives
F-68-1w	W. Refinery Storage Fugitives
F-68-2n	N. Coble Storage Fugitives
F-68-2s	S. Coble Storage Fugitives
F-68-3	West Storage Fugitives
F-68-5	Gasoline Blending System
F-81	Refinery Boilers
F-82	South Boilers
F-85-2	Unit 40 Boiler Fugitives
F-4	Butane Isom Fugitives
F-6	Hexane Isom Fugitives

Cl₂ Sources:

F-54-C2	Cooling Tower (Ecodyne No. 9)
F-54-C3	Cooling Tower (Santa Fe No. 11)
F-54-C4	Cooling Tower (Marley No. 13)
F-54-C6	Cooling Tower (Marley No. 10)

Contaminants, Emission Point Numbers, and Source Names

F-54-C7	Cooling Tower (No. 2 Refinery)
F-54-C8	Cooling Tower (No. 4 Refinery)
F-54-C9	Cooling Tower (No. 7 Refinery)
F-54-C10	Cooling Tower (No. 9 Refinery)
F-54-C11	Cooling Tower (No. 3 Refinery)
F-54-C12	Cooling Tower (Marley No. 12)
F-54-C13	Cooling Tower (Pritchard No. 14)
F-54-C14	Cooling Tower (Marley No. 15)
F-54-C15	Cooling Tower (Pritchard No. 16)
F-54-C16	Cooling Tower (Pritchard No. 18)
F-54-C17	Cooling Tower (No. 8 Refinery)
F-54-C18	Cooling Tower (No. 9 Refinery)
F-54-C19	Cooling Tower (No. 10 Refinery)
F-54-C20	Cooling Tower (GOHDS No. 17)
F-54-C21	Cooling Tower (Vacuum Unit)

HF Sources:

F-53-1	Refinery Loading Fugitives
F-53-2	South Loading Rack
F-66-1	Ref. Flare Area Fugitives
F-66-2	South Flare Fug
F-66-3	GOHDS/Cat Area Fugitives
F-68-1a	GOHDS Storage Fugitives
F-68-1e	E. Refinery Storage Fugitives
F-68-1n	N. Refinery Storage Fugitives
F-68-1r	Rocky Station Fugitives
F-68-1s	S. Refinery Storage Fugitives
F-68-1t	Taubman Yard Fugitives
F-68-1w	W. Refinery Storage Fugitives
F-68-2n	N. Coble Storage Fugitives
F-68-2s	S. Coble Storage Fugitives
F-68-3	West Storage Fugitives
F-68-5	Gasoline Blending System
F-81	Refinery Boilers
F-82	South Boilers
F-85-2	Unit 40 Boiler Fugitives
F-22	HF Alkylation Fugitives

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources use area name or fugitive source name.
- (3) Cl₂ - chlorine

Contaminants, Emission Point Numbers, and Source Names

CO	- carbon monoxide
HCl	- hydrogen chloride
HF	- hydrogen fluoride
H ₂ S	- hydrogen sulfide
NH ₃	- ammonia
NO _x	- total oxides of nitrogen
PM	- total particulate matter, suspended in the atmosphere, including PM10 and PM2.5, as represented
PM ₁₀	- total particulate matter equal to or less than 10 microns in diameter, including PM2.5, as represented
PM _{2.5}	- particulate matter equal to or less than 2.5 microns in diameter
SO ₂	- sulfur dioxide
VOC	- volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1

Dated: May 15, 2019