

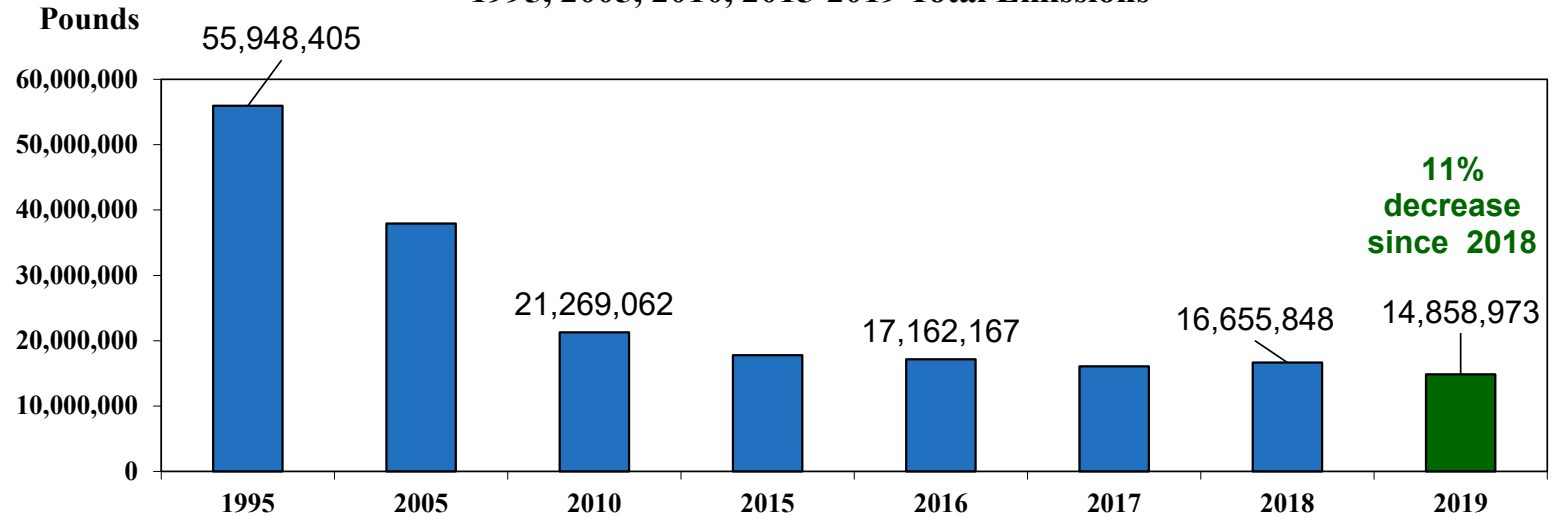
Pasadena CAC
Annual Presentation of TCEQ Emissions Inventory
(EI) & EPA Toxics Release Inventory (TRI)
FINAL 10.28.2020

HANDOUTS

Member Companies, Products Made, Common Uses

Company	Product(s)	Common Uses
Chemicals		
Afton	Fuel additives Lubricant additives	Gasoline for passenger cars Motor oil for passenger cars
Air Products	Gaseous hydrogen	Used in the production of gasoline
Albemarle	Special chemical manufacturing.	Industrial organic chemicals and polymer catalysts.
BASF	DOTP plasticizer 2-Ethylhexanol (2-EH)	Phthalate-free plasticizer production for flexible PVC products such as flooring. 2-EH production used as raw material for Plasticizer Plant.
Chevron Phillips	High density polyethylene (HDPE)	Plastic pipe, merchandise bags, milk jugs, food & beverage containers, household chemical & detergent bottles, pails, drums, pressure pipe, gasoline containers & tanks, and flexible packaging
Enterprise	High purity isobutylene	Goes into tires, cell phone plastics, and lubricants.
Ethyl	Fuel additives Lubricant additives	Gasoline for passenger cars Motor oil for passenger cars
Evonik (began operating in 2017)	Specialty chemicals supporting polyurethane industry	Foam insulation, memory foam, spray foam insulation, automotive interiors, athletic shoe soles
INEOS Phenol	Cumene	Adhesives, plastics
Oxy Vinyls	Poly Vinyl Chloride (PVC)	PVC pipe, vinyl siding, window and door frames, fences and decks
PCI Nitrogen	Sulfuric acid, ammonium thiosulfate, and ammonium sulfate	Farming
Sekisui	Polyvinyl Alcohol	Coatings, films for packaging, safety glass
Refining		
Chevron Refinery	Petroleum Products	Transportation Fuel, Heating Fuel, Petrochemical Feedstocks, Residual Oil, Slurry Oil
LyondellBasell Refining	Fuels and lubes	LPG's, gasoline, diesel, kerosene, aviation fuel, lubricants
Terminals, Treatment		
Enterprise	Terminaling operation	Facilitates rail and truck loading
Gulf Coast Authority	Industrial waste water treatment facility	Clean water
ITC	Liquid storage and transportation.	The facility stores liquid products based on customer needs and demands- primarily petroleum products such as gasoline blendstocks, distillates (ie. Diesel), naptha, etc.
Kinder Morgan Exports Terminal (began operating in 2017)	Storage and distribution operation	Bulk liquid petroleum storage
Kinder Morgan Liquids Terminal	Storage and distribution operation	Bulk storage of various petroleum products

TCEQ Emissions Inventory 1995, 2005, 2010, 2015-2019 Total Emissions



1995→2019 : 73% Reduction in Emissions Inventory -Total Emissions

Emissions Inventory Total Emissions (pounds per year)									
Company	1995	2005	2010	2015	2016	2017	2018	2019	% Change 1995->2019
LyondellBasell Refinery	23,902,000	11,910,262	4,691,718	5,405,376	6,928,876	6,006,147	5,770,535	5,996,830	-75%
Chevron Refinery	8,728,820	9,104,660	8,214,126	6,019,746	4,570,362	4,065,251	5,348,335	3,422,106	-61%
Chevron Phillips	3,830,268	3,203,147	2,311,788	1,899,480	1,730,449	1,941,348	1,740,227	1,753,653	-54%
Kinder Morgan Liquids Terminal	9,022,320	8,325,629	1,645,277	1,687,734	1,796,238	1,822,274	1,336,874	1,442,017	-84%
PCI Nitrogen	3,235,783	1,103,113	1,089,677	927,405	877,867	644,123	627,423	573,235	-82%
Albemarle	3,900,000	1,202,516	496,900	570,500	418,000	483,000	519,100	456,000	-88%
Oxy Vinyls	594,823	681,999	459,527	326,220	325,405	299,566	302,681	316,513	-47%
BASF	877,170	652,760	521,120	313,160	13,229	152,416	268,871	185,907	-79%
ITC				67,969	62,430	108,954	126,839	166,927	146%
INEOS Phenol	485,451	321,240	243,709	160,961	129,232	138,738	267,904	156,175	-68%
Air Products	1,276,520	1,314,234	1,277,544	108,060	130,975	144,246	136,689	117,842	-91%
Sekisui		44,526	64,361	82,599	38,293	46,140	39,433	97,940	46%
Afton					60,666	62,958	57,631	61,874	2%
Enterprise			115,540	128,458	52,598	49,136	46,946	48,258	-58%
Kinder Morgan Export Terminal						88,460	45,897	40,933	-54%
Gulf Coast Authority			37,564	9,408	20,739	35,339	12,447	14,748	-61%
Ethyl					6,807	7,527	8,015	8,015	18%
Afton-Ethyl prior to 2016	95,250	65,590	100,211	75,507					
Totals	55,948,405	37,929,676	21,269,062	17,782,583	17,162,167	16,095,622	16,655,848	14,858,973	
Percent Change (since previous year)		4%	-4%	6%	-3%	-6%	3%	-11%	
Total Percent Change from 1995 to 2019:									-73%

Emissions Inventory Total Emissions:

Changes	Decrease/ Increase in Pounds	% Change from 2018 to 2019
LyondellBasell Refinery	226,295	3.9%
Chevron Refinery	-1,926,229	-36.0%
Chevron Phillips	13,426	0.8%
Kinder Morgan Liquids Terminal	105,143	7.9%
PCI Nitrogen	-54,188	-8.6%
Albemarle	-63,100	-12.2%
Oxy Vinyls	13,832	4.6%
BASF	-82,964	-30.9%
ITC	40,088	31.6%
INEOS Phenol	-111,729	-41.7%
Air Products	-18,847	-13.8%
Sekisui	58,507	148.4%
Afton	4,243	7.4%
Enterprise	1,312	2.8%
Kinder Morgan Export Terminal	-4,964	-10.8%
Gulf Coast Authority	2,301	18.5%
Ethyl	0	0.0%

NOTE: Evonik and Ethyl are exempt from EI

NOTE: Starting in 2016 Afton and Ethyl are reporting separately

Nitrogen Oxides (NOx) 1995, 2005, 2010, 2015-2019 TCEQ Air Emissions Inventory

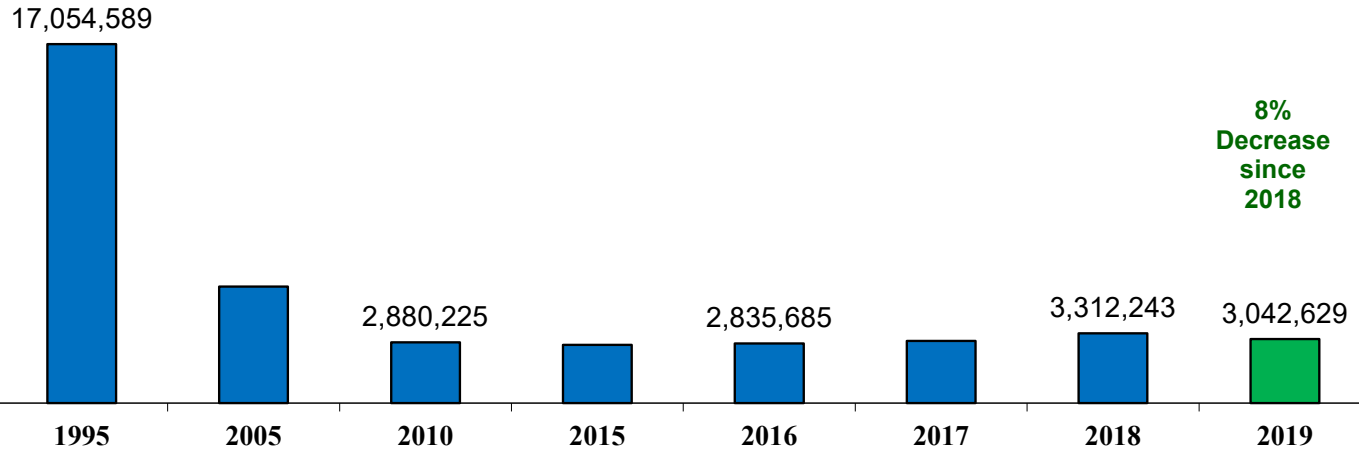
Pounds
20,000,000

15,000,000

10,000,000

5,000,000

0



8%
Decrease
since
2018

1995→2019 : 82% Reduction in NOx Emissions

Nitrogen Oxides (NOx) (pounds per year)									% Change
Company	1995	2005	2010	2015	2016	2017	2018	2019	1995->2019
LyondellBasell Refinery	12,136,000	3,429,331	1,304,431	1,526,116	1,541,413	1,494,626	1,569,143	1,607,218	-87%
Chevron Refinery	2,039,000	1,300,720	962,684	766,903	876,704	995,445	1,304,426	980,525	-52%
Chevron Phillips	1,154,496	88,527	99,751	118,621	109,920	111,247	107,633	108,321	-91%
Oxy Vinyls	108,000	77,172	77,380	63,967	61,636	59,069	55,946	64,574	-40%
Sekisui		1,732	940	19,544	6,938	6,021	8,380	42,099	2331%
Albemarle	610,000	310,000	74,000	55,000	33,200	47,000	46,000	40,000	-93%
Air Products	308,806	141,366	218,024	35,693	56,519	55,469	52,877	35,439	-89%
PCI Nitrogen	37,842	35,288	32,280	35,123	36,988	29,693	27,295	34,974	-8%
ITC				22,389	15,054	17,728	23,294	30,260	35%
Kinder Morgan Liquids Terminal	1,280	616	20,791	42,320	57,480	49,303	27,446	29,960	2241%
INEOS Phenol	279,099	24,584	20,014	20,838	17,906	22,601	24,178	27,242	-90%
BASF	373,720	126,740	61,800	45,440	4,176	31,349	37,109	25,916	-93%
Afton					5,120	5,032	5,120	6,225	22%
Kinder Morgan Export Terminal						13,103	16,450	4,887	-63%
Enterprise			3,080	4,427	5,644	8,080	5,893	4,337	41%
Ethyl					484	484	446	446	-8%
Gulf Coast Authority			8	31	6,503	10,195	607	206	2475%
Afton-Ethyl Prior to 2016	6,346	6,183	5,042	5,708					
Totals	17,054,589	5,542,259	2,880,225	2,762,120	2,835,685	2,956,444	3,312,243	3,042,629	
Percent Change (since previous year)		-22%	-25%	-2%	3%	4%	12%	-8%	
Total Percent Change from 1995 to 2019:									-82%

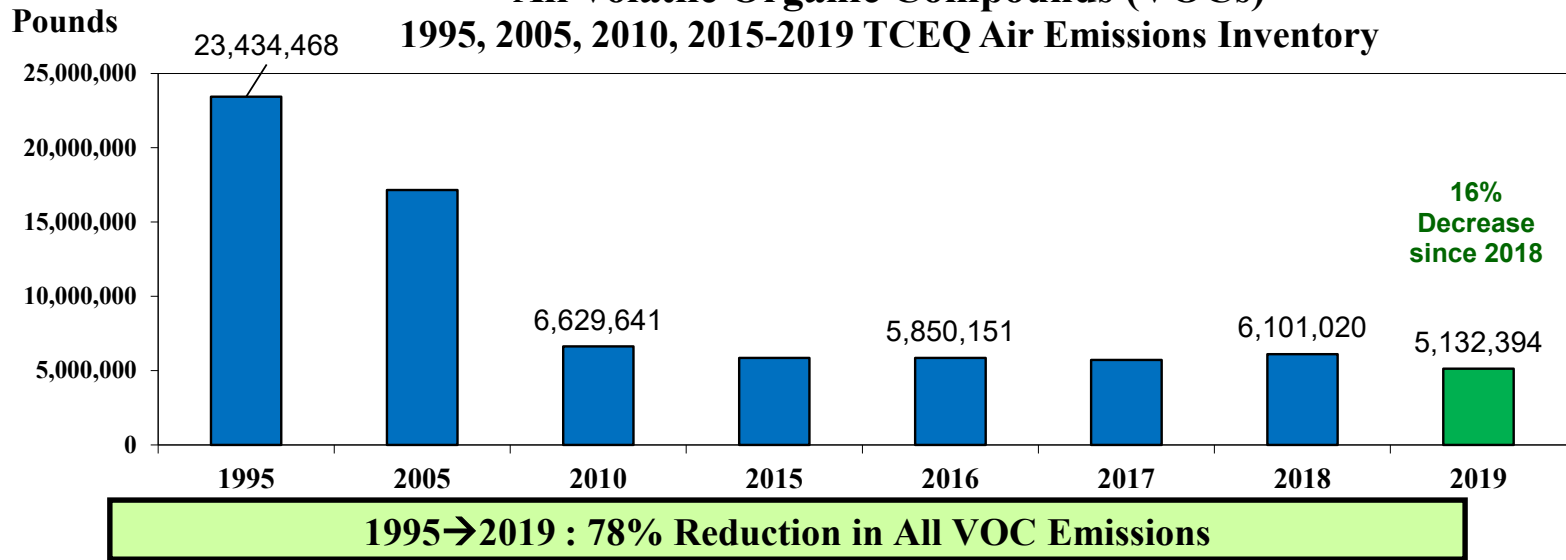
Top "80%"

NOTE: GCA Submitted a correction of a typo in the 2018 NOx value, the value should have been 607 not 61.

NOx: Reasons for Changes $\pm 10\%$

Changes $\pm 10\%$	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comments
Chevron Refinery	-323,901	-25%	Annual operating hours decreased in 2019 (temporary)
Oxy Vinyls	8,628	15%	Continuous monitoring of boiler stack
Sekisui	33,719	402%	Sustainable/Temporary: Acquired boiler from Air Products on 10/1/18, but also had month-long turnaround in 2019 and used more temporary engines
Albemarle	-6,000	-13%	Temporary - Variability of demand
Air Products	-17,438	-33%	Combination of less production and sale of boiler
PCI Nitrogen	7,679	28%	Increase in onstream time and production
ITC	6,966	30%	Expanded tank farm and terminal throughput with combustion control
INEOS Phenol	3,064	13%	Increase in 2019: Supplemental fuel gas to flare to maintain BTU value. Sustainable
BASF	-11,193	-30%	Sustainable decrease to improved equipment reliability
Afton	1,105	22%	Updates to flare emission calculations- Increase in vent setting correction factor used for tank calculations
Kinder Morgan Export Terminal	-11,563	-70%	Vcus (vapor combustion units) were stack tested in late 2018. New emission factors from the test were applied in RY2019 report. (Sustainable)
Enterprise	-1,556	-26%	Decrease in NOx emissions for 2019 due to decreased flaring.
Gulf Coast Authority	-401	-66%	Temporary- decrease due to operating hours of equipment decreasing from maintenance related work.

All Volatile Organic Compounds (VOCs) 1995, 2005, 2010, 2015-2019 TCEQ Air Emissions Inventory



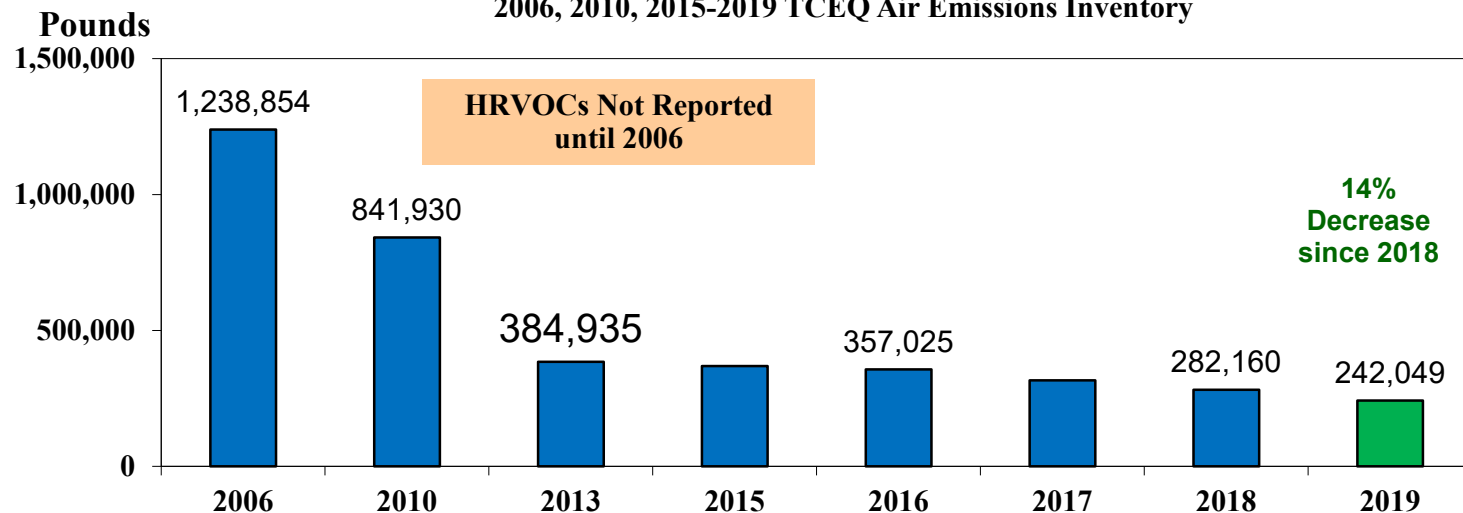
All Volatile Organic Compounds (VOCs) (pounds per year)									% Change
Company	1995	2005	2010	2015	2016	2017	2018	2019	1995->2019
LyondellBasell Refinery	7,662,000	4,062,963	1,598,804	1,700,052	1,814,696	1,683,361	1,585,328	1,446,548	-81%
Kinder Morgan Liquids Terminal	9,010,000	8,306,072	1,508,285	1,161,468	1,288,697	1,177,480	1,258,077	1,373,600	-85%
Chevron Refinery	2,255,580	1,710,100	1,228,349	1,360,707	1,338,237	1,164,764	1,696,241	889,948	-61%
Chevron Phillips	1,929,440	1,935,165	1,292,253	853,153	771,588	986,873	846,772	689,140	-64%
Albemarle	1,500,000	210,000	180,000	290,000	220,400	241,000	240,000	220,000	-85%
Oxy Vinyls	553,760	460,692	278,087	167,007	166,892	141,110	139,826	143,239	-74%
INEOS Phenol	133,736	250,598	177,500	102,005	81,399	93,646	97,080	108,680	-19%
ITC				14,624	26,170	43,904	45,292	64,064	338%
Enterprise			101,380	69,399	52,598	48,960	45,147	46,233	-54%
BASF	204,860	110,640	99,680	47,380	1,672	12,911	39,090	37,060	-82%
Afton					36,924	35,673	31,881	33,069	-10%
Kinder Morgan Export Terminal						19,607	19,009	26,441	35%
Sekisui		36,699	30,875	17,641	17,002	18,773	17,956	20,512	-44%
Gulf Coast Authority			37,323	9,315	11,762	20,502	12,172	14,446	-61%
Air Products	87,560	13,058	18,892	17,410	13,400	16,240	14,220	9,322	-89%
Ethyl					6,044	6,071	7,111	7,111	18%
PCI Nitrogen	2,282	5,123	5,444	2,877	2,670	2,494	5,818	2,980	31%
Afton-Ethyl Prior to 2016	95,250	51,553	72,769	44,165					
Totals	23,434,468	17,152,663	6,629,641	5,857,203	5,850,151	5,713,368	6,101,020	5,132,394	
Percent Change (since previous year)		9%	-4%	-24%	0%	-2%	7%	-16%	
		Total Percent Change from 1995 to 2019							-78%

All VOCs: Reasons for Changes ±10%

Changes ± 10%	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comments
Chevron Refinery	-806,293	-48%	Annual operating hours decreased in 2019 (temporary)
Chevron Phillips	-157,632	-19%	SUSTAINABLE - *Reduction attributed to installation of carbon bed (see point sources note)
INEOS Phenol	11,600	12%	Increase in 2019: Supplemental fuel gas to flare to maintain BTU value. Sustainable
ITC	18,772	41%	Expanded tank farm and terminal throughput with combustion control
Kinder Morgan Export Terminal	7,432	39%	Product throughput and marine loading activities increased in 2019. (Temporary)
Sekisui	2,556	14%	Sustainable/Temporary: Acquired boiler from Air Products on 10/1/18, but also had month-long turnaround in 2019 and used more temporary engines
Gulf Coast Authority	2,274	19%	Temporary- increased VOC loading from industrial users & a calculation method change.
Air Products	-4,898	-34%	Combination of less production and sale of boiler
PCI Nitrogen	-2,838	-49%	2018 unusual high and now back to expected #'s

Highly Reactive Volatile Organic Compounds (HRVOCs) (subset of VOCs)

2006, 2010, 2015-2019 TCEQ Air Emissions Inventory



2006→2019 : 80% Reduction in HRVOC Emissions

Highly Reactive Volatile Organic Compounds (HRVOCs) _(pounds per year)								% Change
Company	2006	2010	2015	2016	2017	2018	2019	2006->2019
Chevron Phillips	682,604	524,815	100,204	88,999	94,986	88,472	93,319	-86%
LyondellBasell Refinery	151,040	34,515	50,470	85,575	40,340	47,987	45,428	-70%
Chevron Refinery	153,455	171,266	151,822	134,285	121,180	75,475	42,279	-72%
Albemarle	190,000	55,000	39,000	31,000	40,000	35,000	30,000	-84%
Enterprise		25,067	10,978	8,086	3,880	17,239	19,112	230%
Oxy Vinyls	298	243	5,815	6,448	6,554	3,353	4,901	1545%
BASF	4,360	14,200	9,241	32	2,377	6,694	4,210	-3%
INEOS Phenol	57,097	16,824	1,797	2,600	7,580	7,940	2,800	-95%
Totals	1,238,854	841,930	369,327	357,025	316,897	282,160	242,049	
Percent Change (since previous year)		-17%	-2%	-3%	-11%	-11%	-14%	
Total Percent Change from 2006 to 2019								-80%

Top "80%"

Not Subject to HRVOC Reporting: Afton, Air Products, Ethyl, Evonik, Gulf Coast Authority, ITC, Kinder Morgan Export Terminal, Kinder Moraan Liquids Terminal. PCI Nitroaen. & Sekisui

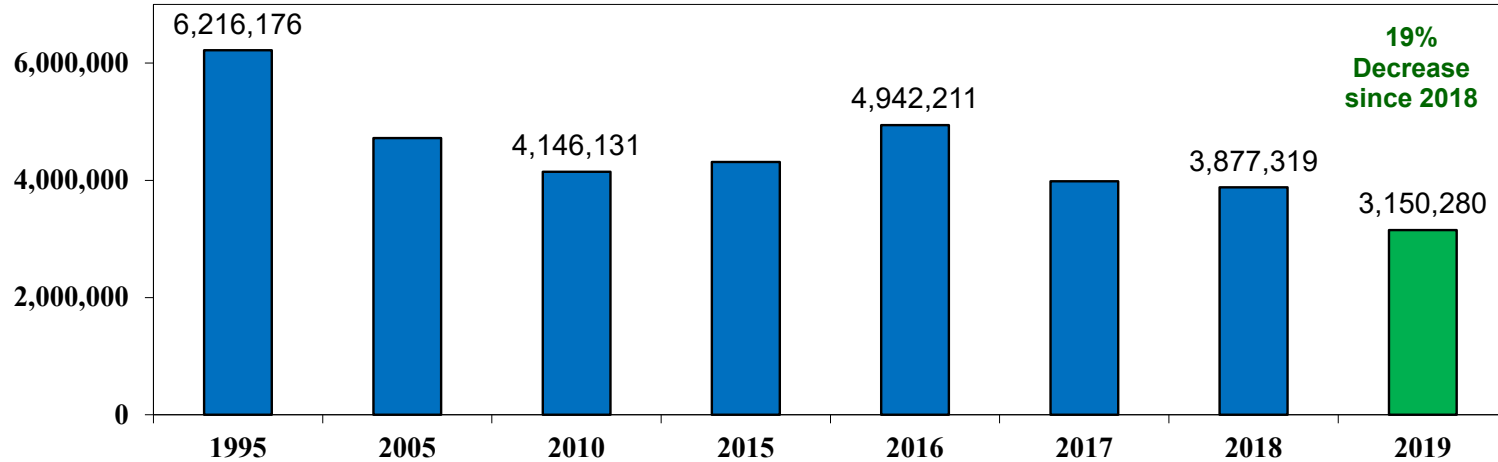
Note: Data Transcription Error for Air Products found Sept 2019, values should have been zero. Therefore, the total values for 2006 and 2010 have changed. Original values were: 2006 (1,250,814) and 2010 (860,822). LyondellBasell Refinery submitted a correction in August 2019 for their 2017 HRVOC data, original value was 39,436.

HRVOCs: Reasons for Changes \pm 10%

Changes \pm 10%	Decrease /Increase in Pounds	% Change from 2018 to 2019	Comments
Chevron Refinery	-33,196	-44%	Annual operating hours decreased in 2019 (temporary)
Albemarle	-5,000	-14%	Temporary - Variability of demand
Enterprise	1,873	11%	The increase in HRVOCs was due to additional permitted flaring activities for the site.
Oxy Vinyls	1,548	46%	Increase in fugitives from refrigeration skid
BASF	-2,484	-37%	Sustainable decrease to improved equipment reliability
INEOS Phenol	-5,140	-65%	Decrease in 2019: 2018 included emission event that did not occur in 2019. Sustainable.

Pounds

Sulfur Oxides (SOx) 1995, 2005, 2010, 2015-2019 TCEQ Air Emissions Inventory



1995→2019: 49% Reduction in SOx Emissions

Sulfur Oxides (SOx) (pounds per year)									% Change
Company	1995	2005	2010	2015	2016	2017	2018	2019	1995->2019
LyondellBasell Refinery	1,892,000	1,606,028	671,235	1,057,159	2,545,563	2,088,569	1,828,392	1,921,194	2%
Chevron Refinery	3,290,160	2,660,400	2,827,556	2,592,240	1,778,822	1,478,675	1,659,136	945,616	-71%
PCI Nitrogen	1,021,848	423,579	616,500	654,540	612,208	411,250	384,345	276,931	-73%
Sekisui		642	41	1,575	776	553	411	1,674	161%
Oxy Vinyls	640	1,238	2,697	1,662	1,554	1,404	1,186	1,269	98%
Albemarle	2,800	1,700	1,100	1,300	820	1,200	1,000	750	-73%
BASF	360	2,080	440	300	33	379	634	670	86%
Enterprise			20	512	568	640	620	580	18%
Air Products	4,160	4,060	5,204	406	512	558	472	380	-91%
ITC				90	144	169	220	280	211%
Chevron Phillips	3,260	647	721	344	226	268	272	276	-92%
Kinder Morgan Liquids Terminal			111	527	302	172	216	212	91%
INEOS Phenol	948	19,691	20,446	207	173	195	201	210	-78%
Kinder Morgan Export Terminal						99	105	115	17%
Afton					48	48	40	56	17%
Gulf Coast Authority			1	2	430	674	40	37	6067%
Ethyl					32	32	30	30	-6%
Afton-Ethyl Prior to 2016	0	53	60	52					
Totals	6,216,176	4,720,117	4,146,131	4,310,916	4,942,211	3,984,885	3,877,319	3,150,280	
Percent Change (since previous year)		3%	4%	29%	15%	-19%	-3%	-19%	
Total Percent Change from 1995 to 2019:									-49%

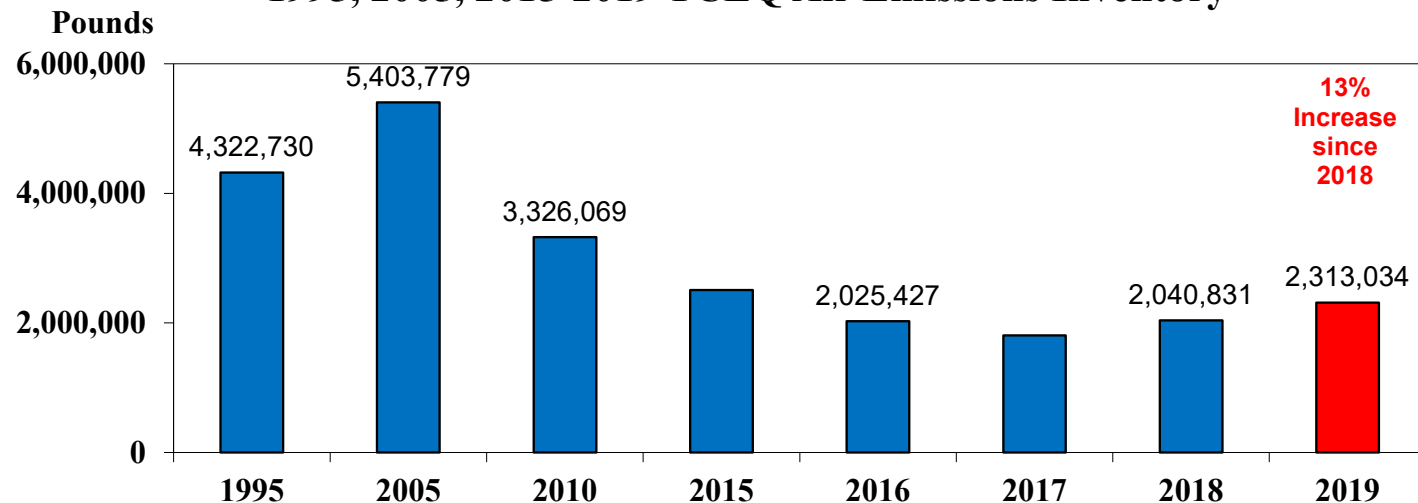
Top "80%"

Note: BASF submitted a correction in August 2019 for their 2017 SOx data, therefore changing their 2017 data from 1,228 to 379.

SOx: Reasons for Changes ± 10%

Changes ± 10%	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comment
Chevron Refinery	-713,520	-43%	Annual operating hours decreased in 2019 (temporary)
PCI Nitrogen	-107,414	-28%	Efficiency and control upgrades
Sekisui	1,263	307%	Sustainable/Temporary: Acquired boiler from Air Products on 10/1/18, but also had month-long turnaround in 2019 and used more temporary engines
Albemarle	-250	-25%	Temporary - Lower blasting activity
Air Products	-92	-19%	Combination of less production and sale of boiler
ITC	60	27%	Expanded tank farm and terminal throughput with combustion control
Kinder Morgan Export Terminal	10	10%	None
Afton	16	40%	Updates to hot oil furnace and flare emission calculations- Increase in vent setting correction factor used for tank calculations

Carbon Monoxide (CO) 1995, 2005, 2015-2019 TCEQ Air Emissions Inventory



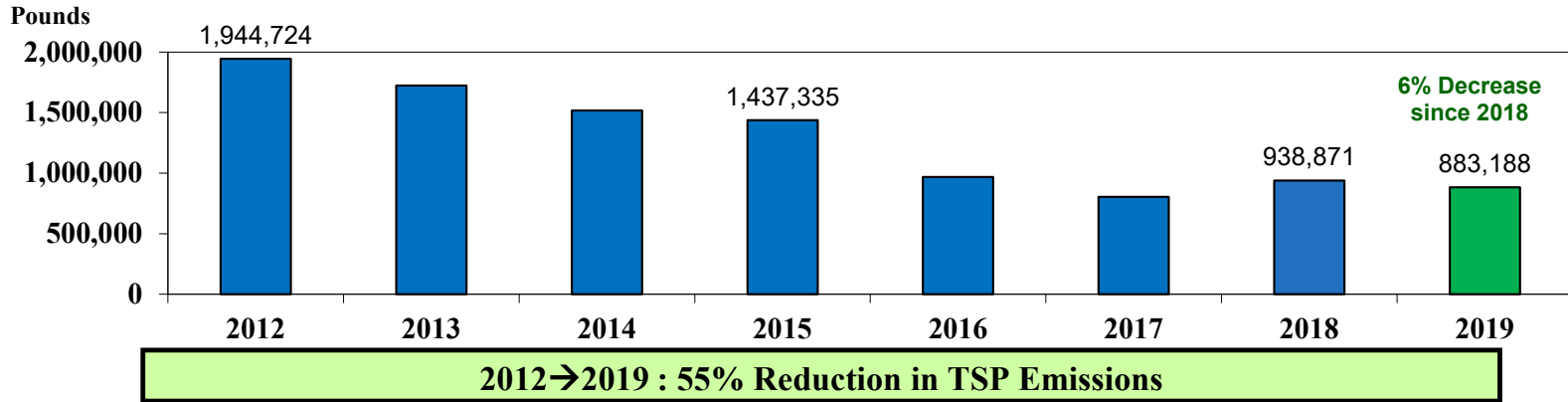
1995→2019: 46% Reduction in CO Emissions

Carbon Monoxide (CO) (pounds per year)									% Change
Company	1995	2005	2010	2015	2016	2017	2018	2019	1995->2019
Chevron Phillips	649,286	611,913	749,119	894,153	810,701	803,022	758,471	805,123	24%
LyondellBasell Refinery	1,586,000	2,450,584	703,750	747,092	669,753	413,023	420,861	652,356	-59%
Chevron Refinery	517,320	720,380	509,726	373,260	300,333	183,803	369,406	410,164	-21%
BASF	373,720	395,580	307,340	188,040	5,089	90,037	173,375	102,341	-73%
Albemarle	110,000	280,000	180,000	120,000	62,000	75,000	95,000	82,000	-25%
ITC				29,722	17,958	40,626	54,946	68,763	131%
PCI Nitrogen	37,520	42,133	36,889	40,660	41,749	34,191	32,345	41,634	11%
Oxy Vinyls	113,200	42,718	22,657	15,003	15,424	16,582	23,329	32,940	-71%
Kinder Morgan Liquids Terminal	11,040	3,352	64,061	15,633	17,980	12,547	22,325	25,391	130%
Sekisui		5,453	3,029	12,189	9,998	10,026	7,593	24,904	357%
Afton					17,770	17,776	19,060	21,569	21%
Air Products	844,380	829,446	722,488	23,290	24,952	28,130	28,076	16,074	-98%
Enterprise			3,800	23,560	18,117	21,960	18,721	13,660	101%
Kinder Morgan Export Terminal						52,758	9,222	8,660	-84%
INEOS Phenol	71,668	14,419	12,611	3,191	12,089	5,235	7,874	7,315	-90%
Ethyl					104	104	96	96	-8%
Gulf Coast Authority			2	7	1,410	2,209	131	44	2100%
Afton-Ethyl Prior to 2016	8,596	7,801	10,597	21,242					
Totals	4,322,730	5,403,779	3,326,069	2,507,042	2,025,427	1,807,030	2,040,831	2,313,034	
Percent Change (since previous year)		10%	-14%	10%	-19%	-11%	13%	13%	
Total Percent Change from 1995 to 2019:									-46%

CO: Reasons for Changes $\pm 10\%$

Changes $\pm 10\%$	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comment
LyondellBasell Refinery	231,495	55%	Higher natural gas use at flares to meet EPA Refinery Sector Rule (RSR) requirement for proper combustion
Chevron Refinery	40,758	11%	While annual operating hours decreased in 2019, approximate 10% emission increase of CO from maintenance, startup, and shutdown (MSS) activities occurred (temporary)
BASF	-71,034	-41%	Sustainable decrease to improved equipment reliability
Albemarle	-13,000	-14%	Temporary - Variability of demand
ITC	13,817	25%	Expanded tank farm and terminal throughput with combustion control
PCI Nitrogen	9,289	29%	Increase in onstream time and production
Oxy Vinyls	9,611	41%	Continuous monitoring of boiler stack
Kinder Morgan Liquids Terminal	3,066	14%	Vapor Combustion Unit (VCU) usage for tank roof landing events increased in 2019. (Temporary)
Sekisui	17,311	228%	Sustainable/Temporary: Acquired boiler from Air Products on 10/1/18, but also had month-long turnaround in 2019 and used more temporary engines
Afton	2,509	13%	Updates to hot oil furnace and flare emission calculations- Increase in vent setting correction factor used for tank calculations; Increased generator run-time.
Air Products	-12,002	-43%	Combination of less production and sale of boiler
Enterprise	-5,061	-27%	Decrease in CO emissions in 2019 from the two boilers that function on-site.
Gulf Coast Authority	-87	-66%	Temporary- decrease due to operating hours of equipment decreasing from maintenance related work.

Total Suspended Particulates (TSP) 2012-2019 TCEQ Air Emissions Inventory



Total Suspended Particulates (TSP) (pounds per year)									% Change
Company	2012	2013	2014	2015	2016	2017	2018	2019	2012->2019
LyondellBasell Refinery	373,114	357,191	346,843	374,956	357,450	334,726	366,812	369,513	-1%
Chevron Refinery	1,071,952	987,424	729,210	680,600	258,215	135,110	228,499	166,260	-84%
PCI Nitrogen	80,098	87,748	110,054	103,670	105,931	95,277	100,992	122,130	52%
Oxy Vinyls	71,657	82,245	75,240	73,811	75,617	80,108	72,718	69,962	-2%
Albemarle	7,700	6,700	7,256	22,000	49,200	51,000	61,000	40,000	419%
Chevron Phillips	134,160	96,973	111,620	48,203	38,239	35,465	27,080	38,333	-71%
Air Products	121,940	29,412	36,016	30,372	30,792	41,654	35,302	28,240	-77%
BASF	25,914	26,033	27,450	25,620	2,225	6,198	18,664	19,921	-23%
INEOS Phenol	15,817	11,325	11,265	13,275	11,082	12,038	12,428	12,728	-20%
Enterprise	2,897	2,938	30,266	30,286	30,590	4,340	5,432	4,980	72%
Sekisui	27,028	26,992	28,162	28,838	635	418	1,248	3,745	-86%
ITC				1,144	1,818	2,139	2,800	3,560	211%
Kinder Morgan Liquids Terminal	463	2,430	319	754	5,101	3,172	3,074	1,901	311%
Afton					604	594	1,580	930	54%
Kinder Morgan Export Terminal						830	1,057	828	0%
Ethyl					148	143	141	141	-5%
Gulf Coast Authority	364	1,422	2	28	634	1,759	43	15	-96%
Afton-Ethyl Prior to 2016	11,620	4,216	3,659	3,778					
Totals	1,944,724	1,723,049	1,517,362	1,437,335	968,281	804,972	938,871	883,188	
Percent Change (since previous year)		-11%	-12%	-5%	-33%	-17%	17%	-6%	
Total Percent Change from 2012 to 2019:									-55%

Note: LyondellBasell Refinery submitted a correction in August 2019 for their 2017 TSP data, original value was 326,568.

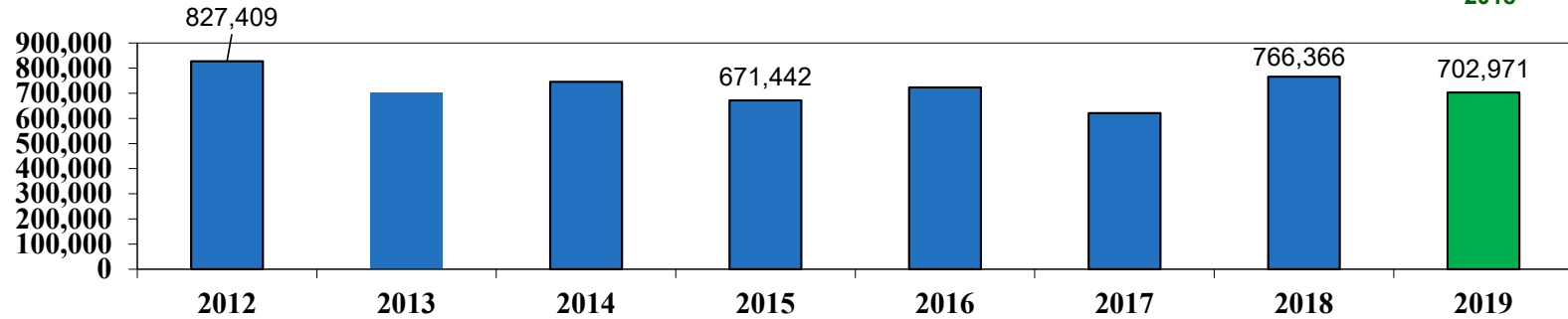
TSP: Reasons for Changes ± 10%

Changes ± 10%	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comment
Chevron Refinery	-62,239	-27%	Annual operating hours decreased in 2019 (temporary)
PCI Nitrogen	21,138	21%	Increase in onstream time and production
Albemarle	-21,000	-34%	Temporary - Lower blasting activity
Chevron Phillips	11,253	42%	CALCULATION METHOD CHANGE/TEMPORARY - * TSP calculations underestimated particulate matter emissions on the three cooling towers for CY 2018. The 2019 emissions are consistent with historical values.
Air Products	-7,062	-20%	Combination of less production and sale of boiler
Sekisui	2,497	200%	Sustainable/Temporary: Acquired boiler from Air Products on 10/1/18, but also had month-long turnaround in 2019 and used more temporary engines
ITC	760	27%	Expanded tank farm and terminal throughput with combustion control
Kinder Morgan Liquids Terminal	-1,173	-38%	Emissions from emergency generators were over reported in RY2018 due to emission factor errors. The error was fixed in RY 2019. (Calculation Method Change)
Afton	-650	-41%	Reduced activities in 2019.
Kinder Morgan Export Terminal	-229	-22%	The Vapor Combustion Unit usage for tank roof landing activities significantly reduced in 2019. (Temporary)
Gulf Coast Authority	-28	-65%	Temporary- decrease due to decreased sandblasting activities associated with maintenance projects.

Total Suspended Particulates Reported as PM 2.5 2012-2019 TCEQ Air Emissions Inventory

**8%
Decrease
since
2018**

Pounds



2012→2019: 15% Reduction in PM 2.5 Emissions

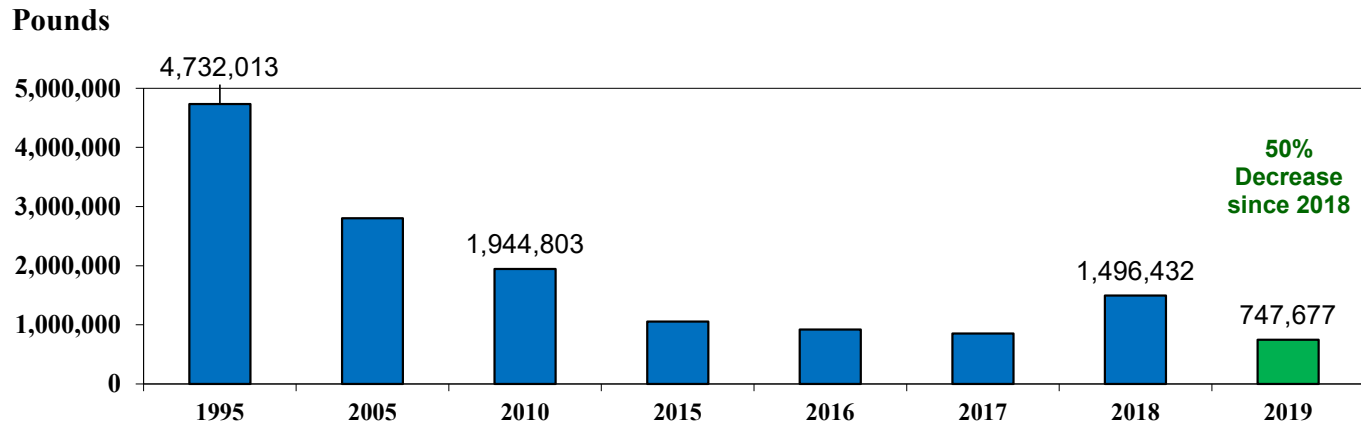
Total Suspended Particulates (TSP) reported as PM 2.5 (pounds per year)									
Company	2012	2013	2014	2015	2016	2017	2018	2019	% Change 2012->2019
LyondellBasell Refinery	344,184	341,891	334,502	363,151	345,965	317,530	350,431	352,303	2%
Chevron Refinery	89,030	94,459	128,773	122,560	212,633	125,241	212,577	153,935	73%
Oxy Vinyls	69,300	67,400	66,975	67,653	69,766	74,909	70,164	67,245	-3%
PCI Nitrogen	24,660	28,224	26,715	34,232	35,019	28,224	29,407	42,223	71%
Air Products	121,940	29,412	36,016	30,372	30,792	41,654	35,302	28,240	-77%
Albemarle	40	44	46	1,300	1,000	900	34,000	22,000	54900%
INEOS Phenol	15,817	11,319	11,240	13,274	11,074	12,034	12,423	12,708	-20%
Chevron Phillips	134,160	96,469	111,620	9,291	9,167	9,366	9,419	9,408	-93%
BASF	25,914	26,033	27,450	25,620	33	3,012	4,283	4,619	-82%
ITC				1,144	1,818	2,139	2,800	3,560	211%
Sekisui					3	2	706	3,274	109033%
Kinder Morgan Liquids Terminal	308	2,348	319	754	5,101	3,172	3,074	1,901	517%
Kinder Morgan Export Terminal						830	1,057	828	0%
Afton						830	680	712	-14%
Gulf Coast Authority	179	1,406	2	18	575	848	43	15	-92%
Enterprise	1,434	1,354	1,370	1,390	0	0	0	0	-100%
Ethyl						143	0	0	-100%
Afton-Ethyl Prior to 2016	443	469	564	683					
Totals	827,409	700,828	745,592	671,442	722,946	620,835	766,366	702,971	
Percent Change (since previous year)		-15%	6%	-10%	8%	-14%	23%	-8%	
Total Percent Change from 2012 to 2019:									-15%

Top "80%"

TSP Reported as PM 2.5: Reasons for Changes ±10%

Changes ± 10%	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comment
Chevron Refinery	-58,642	-28%	Annual operating hours decreased in 2019 (temporary)
PCI Nitrogen	12,816	44%	Increase in onstream time and production
Air Products	-7,062	-20%	Combination of less production and sale of boiler
Albemarle	-12,000	-35%	Temporary - Lower blasting activity
ITC	760	27%	Expanded tank farm and terminal throughput with combustion control
Sekisui	2,568	364%	Sustainable/Temporary: Acquired boiler from Air Products on 10/1/18, but also had month-long turnaround in 2019
Kinder Morgan Liquids Terminal	-1,173	-38%	Emissions from emergency generators were over reported in RY2018 due to emission factor errors. The error was fixed in RY 2019. (Calculation Method Change)
Kinder Morgan Export Terminal	-229	-22%	The Vapor Combustion Unit usage for tank roof landing activities significantly reduced in 2019. (Temporary)
Gulf Coast Authority	-28	-65%	Temporary- decrease due to decreased sandblasting activities associated with maintenance projects.

EPA TRI Total Air Releases 1995, 2005, 2010, 2015-2019



1995→2019 : 68% Reduction in TRI Total Air Releases

TRI Total Air Releases (pounds per year)									% Change
Company	1995	2005	2010	2015	2016	2017	2018	2019	1995->2019
LyondellBasell Refinery	1,394,178	596,275	167,562	202,415	254,158	236,263	250,030	245,011	-82%
Chevron Phillips	1,139,354	1,108,974	546,394	150,878	141,114	170,048	134,602	136,229	-88%
PCI Nitrogen	144,301	124,908	130,525	65,150	76,372	68,132	73,916	92,468	-36%
Albemarle	427,200	113,000	95,000	98,600	60,000	89,000	123,000	70,000	-84%
Oxy Vinyls	594,823	243,939	174,582	70,639	62,146	53,199	52,879	57,502	-90%
INEOS Phenol	82,789	127,224	99,150	58,566	47,579	58,603	172,668	55,059	-33%
Chevron Refinery	531,821	177,192	504,265	363,734	239,831	116,029	630,417	42,693	-92%
Sekisui		31,083	29,300	18,121	16,707	27,793	19,271	17,200	-45%
Air Products	303,400	232,556	188,804	15,508	12,370	20,447	13,989	10,513	-97%
BASF	94,000	40,600	3,809	2,706		5	3,530	14,420	-89%
Afton					5,078	4,225	5,386	4,773	-6%
Evonik						4,215	4,215	4,236	0%
Ethyl					960	1,228	1,136	1,136	18%
Enterprise			99	3,092	4,469	504	504	688	592%
Afton-Ethyl Prior to 2016	20,147	8,370	5,312	4,652					
Totals	4,732,013	2,804,121	1,944,803	1,054,061	920,789	853,216	1,496,432	747,677	
Percent Change (since previous year)		-7%	-2%	-19%	-13%	-7%	75%	-50%	
Total Percent Change from 1995 to 2019									-68%

Not subject to TRI Reporting: Gulf Coast Authority, ITC, Kinder Morgan Export Terminal and Kinder Morgan Liquids Terminals.

Note: 2017 Changes: (was 838,216). LyondellBasell Refinery submitted a correction in August 2019 for their 2017 Fugitive and point data, therefore changing their 2017 total from 221,263 to 236,263.

Total TRI Air Releases: Changes ±10%

Changes ±10%	Decrease/ Increase in Pounds	% Change from 2018 to 2019	Comment
PCI Nitrogen	18,552	25%	Fugitive and Point Sources: increase in onstream time and production
Albemarle	-53,000	-43%	Fugitive and Point Sources: Activity level for some chemicals fell below reporting threshold
INEOS Phenol	-117,609	-68%	Point Sources: Decrease in 2019: 2018 included emission event that did not occur in 2019. Sustainable
Chevron Refinery	-587,724	-93%	Fugitive: In addition to decrease of annual operating hours in 2019 (temporary), the following occurred: a reduction of measured LDAR leaks, removal of equipment no longer in service (sustainable), and used a more accurate emission factor to calculate non-monitored components (sustainable) Point Sources: Decrease is primarily from an emission event that occurred in 2018 (sustainable)
Sekisui	-2,071	-11%	Fugitive: Sustainable: Reportable Quantity emission event in 2018 led to higher Fugitive emissions then
Air Products	-3,476	-25%	Fugitive: As of Oct 2019, Air Products no longer owns and operates a boiler which contributed emissions in the past. Point Sources: As of Oct 2019, Air Products no longer owns and operates a boiler which contributed emissions in the past. And reduced production
BASF	-4,251	-29%	Fugitive: Temporary increase due to more LDAR leaks. Point Sources: Sustainable decrease due to improved equipment reliability
Afton	-613	-11%	Fugitive and Point Sources: Updates to emission calculations, physical properties of raw materials, and product
Enterprise	184	37%	Point Sources: Inclusion of additional point source