



# Illegal Air Pollution in Texas, 2020

COVID Recession Leads to Drop in Reported Emissions

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## ACKNOWLEDGEMENTS

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The Environmental Integrity Project (<http://www.environmentalintegrity.org>) is a nonpartisan, nonprofit organization established in March of 2002 by former EPA enforcement attorneys to advocate for effective enforcement of environmental laws. EIP has three goals: 1) to provide objective analyses of how the failure to enforce or implement environmental laws increases pollution and affects public health; 2) to hold federal and state agencies, as well as individual corporations, accountable for failing to enforce or comply with environmental laws; and 3) to help local communities obtain the protection of environmental laws.

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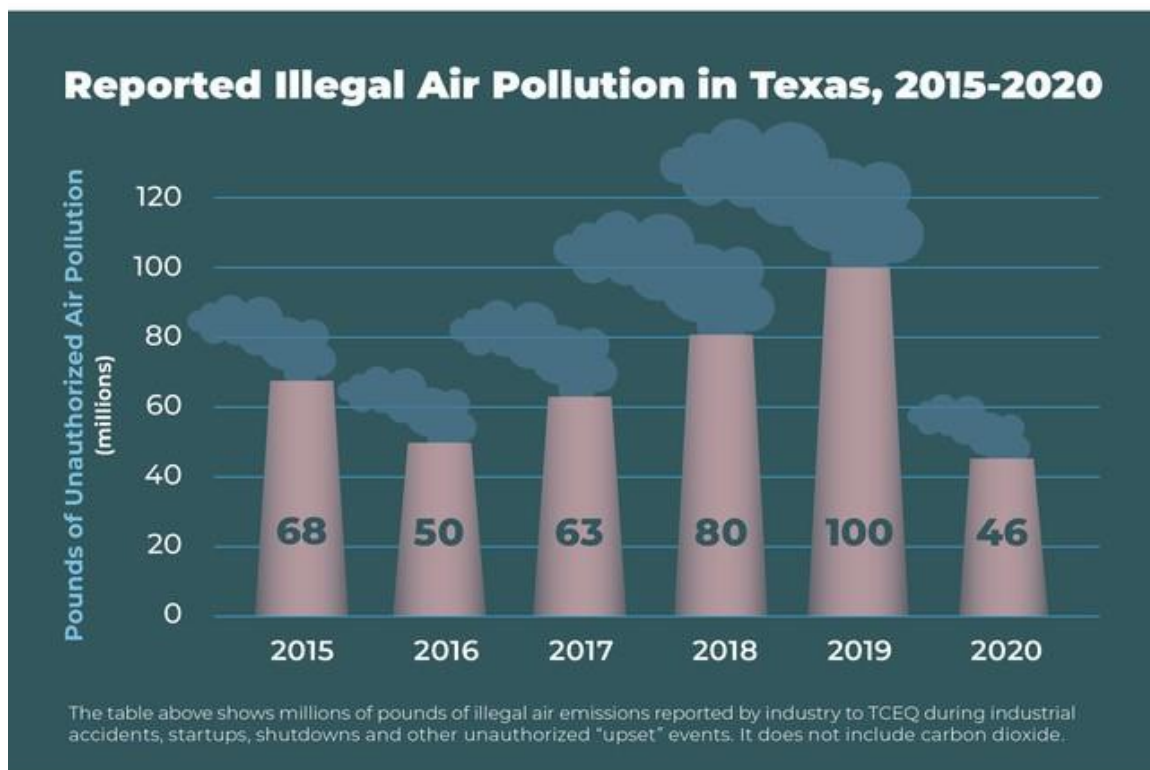
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## COVID Recession Leads to Drop in Reported Emissions

### Executive Summary

Every year, oil, gas, and petrochemical operations across Texas release millions of pounds of unauthorized air pollution in violation of their permits during equipment malfunctions, shutdowns, and startups. Known as upsets, or “emission events,” Texas industrial plants release a number of different dangerous pollutants, including butadiene, benzene, particulate matter, and hydrogen sulfide. Whether originating from West Texas oilfields or Gulf Coast industrial facilities, these pollution events degrade air quality and often occur adjacent to residential neighborhoods. The ongoing failure of state regulators to crack down on the unpermitted emissions exposes Texans to unnecessary risks from harmful air pollution.

According to our analysis of unauthorized, unpermitted emissions self-reported by companies to the Texas Commission on Environmental Quality (TCEQ), industrial facilities released more than 46 million pounds of illegal air pollution in 2020, a decrease of 54 percent from 2019 and significantly below the average of 72 million pounds over the last five years.<sup>1</sup> Emissions dropped in each of TCEQ’s 16 regions except one. In the Dallas Fort Worth region, unauthorized air pollution increased by 37 percent from 2019 to 2020.



A recession across the oil, gas, and petrochemical industries caused in part by the COVID-19 pandemic led to a decline in production.<sup>2</sup> This pandemic-driven slowdown in production caused a drop in unauthorized emissions in 2020, according to a report by the Texas Commission on Environmental Quality.<sup>3</sup> Preliminary 2021 industry emissions reports indicate that the pollution drop is likely to be short lived unless state and federal regulators ramp up environmental enforcement and eliminate pollution loopholes.

This analysis is drawn only from self-reported violations that were submitted to TCEQ through the State of Texas Environmental Electronic Reporting System (STEERS) for pollution releases during industrial accidents, shutdowns, startups and unplanned maintenance. The numbers do not include pollution from *unreported* emissions events or from excess emissions that occur during normal, daily operation of industries. For this reason, the numbers in this report significantly under-represent the amount of illegal air pollution released in Texas.

### Key Findings:

- In 2020, companies reported 2,980 breakdowns, malfunctions, and other unauthorized air pollution events that resulted in the release of over 46 million pounds of illegal air pollution, a decrease of 54 percent from 2019.
- The Midland region of West Texas reported by far the largest quantity of unauthorized emissions at 30.7 million pounds, nearly six times more than the next highest region, Houston, which reported 5.5 million pounds. This discrepancy highlights how supposedly small sources of air pollution, like oil and gas wells, release as much or more pollution during equipment breakdowns as large factories but escape factory-style regulation because they claim to be minor or “insignificant” polluters.
- In 2020, TCEQ and the state financially penalized companies for 155 unauthorized air pollution events, a 30 percent increase from the 119 penalties in 2019.
- The worst individual polluters in the state, listed by type of emissions and including only breakdowns and other “upset” emissions, were the following: The Valero Corpus Christi Refinery East Plant in Nueces County emitted the most benzene



*Industrial facilities in Texas released over 46 million pounds of unauthorized pollution in 2020.*

(7,136 lbs.); The Martin County Gas Plant in West Texas released the most nitrogen oxides (601,926 lbs.); The National Container Group facility in Harris County, near Houston, released the most particulate matter (265,000 lbs.) For more, see Top 10 lists on pages 7-10.

### **Recommendations:**

- Texas should more vigorously and consistently penalize facilities that report unauthorized emissions events to create a stronger financial incentive for plant owners to operate and maintain, or upgrade, their facilities and protect public health. To this end, the TCEQ should better define “Excessive Emissions Events” to include any emissions that could have been avoided or that degrades air quality; adopt mandatory minimum fines; and eliminate the “affirmative defense” loophole as required by EPA.
- Texas should require all sources, but especially repeat violators, to provide evidence supporting any claim that malfunctions resulting in illegal pollution releases are not preventable before deciding not to pursue enforcement actions for penalties and cleanup.
- Texas should establish additional pollution monitors to accurately measure air quality impacts from unauthorized industrial emissions. The state should also work with federal and local agencies to implement continuous monitoring requirements for toxic pollutants.
- Texas should improve the TCEQ STEERS database reporting system and instructions so that facilities report uniformly, accurately, and in a way that enables the public to easily determine the amount and type of pollution released during unauthorized events.
- Texas should provide emergency alerts to community members who ask for notification of releases of toxic chemicals by manufacturing plants.
- Texas should require repeat violators to undergo a 3<sup>rd</sup> party audit to identify changes in source design and operation that would reduce the frequency and severity of illegal pollution releases in the future and require violators to implement improvements identified through the audit process.

## Impact and Reporting of Pollution

Researchers at Harvard University found in a 2021 study that more than 17,000 Texans lose their lives each year due to air pollution from all sectors.<sup>4</sup> A 2013 MIT study estimated 3,583 Texans die prematurely specifically from authorized and unauthorized industrial emissions.<sup>5</sup> Scientists at Environmental Defense Fund and Harvard University concluded that in the Greater Houston area, 5,213 Texans died prematurely due to particulate matter exposure in 2015 and that this pollution resulted in over \$49 billion in associated economic damages.<sup>6</sup>



*In 2020, companies reported 3,614 breakdowns, malfunctions, and other unauthorized air pollution events*

Companies must disclose unplanned pollution releases for which they are not permitted to the Texas Commission on Environmental Quality (TCEQ) within 24 hours. TCEQ started this reporting requirement in 2002 at the direction of a law passed by the Texas Legislature<sup>7</sup> the previous year. The state requires companies to report unauthorized pollution above certain threshold levels to what is called the State of Texas Electronic Emissions Reporting System (STEERS). This report is based on the reports filed with STEERS in 2020. This database includes reports that companies are required to file when their plants release air pollution during malfunctions and unauthorized maintenance events. The numbers do not include pollution from *unreported* emissions events or from excess emissions that occur during normal, daily operation of industries.

A November 2020 report by the Texas Commission on Environmental Quality indicated that the recession caused by the COVID-19 pandemic was the primary reason for the drop in reported “upset” emissions in the 2020 fiscal year. “Decreases in FY 2020 can be attributed to the COVID-19 that resulted in a reduction in oil and gas operations and general downturn in economic activity,” TCEQ’s Annual Enforcement Report said.<sup>8</sup> “Expansions in oil and gas infrastructure and pipeline capacity continue to contribute to a reduction in emissions events.”

The rankings below list the companies responsible for the largest amounts of self-reported air pollution from these releases, including of benzene, nitrogen oxides, particulate matter, sulfur dioxide, hydrogen sulfide, butadiene, carbon dioxide, and volatile organic compounds.

## Top 10 Unauthorized Benzene Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total Benzene (lbs)
1	Valero Corpus Christi Refinery East Plant	Nueces	7,136
2	Chevron Phillips Chemical Port Arthur Facility	Jefferson	4,704
3	Lobo Processing Plant	Loving	3,780
4	ExxonMobil Beaumont Refinery	Jefferson	2,420
5	BASF TOTAL FINA NAFTA Region Olefins Complex	Jefferson	2,308
6	Dow Texas Operations Freeport	Brazoria	1,969
7	Chevron Phillips Chemical Cedar Bayou Plant	Harris	1,769
8	Motiva Chemicals	Jefferson	1,405
9	Wildcat Gas Plant	Winkler	1,341
10	Formosa Point Comfort Plant	Calhoun	1,296

Benzene is a highly flammable gas used by many industries that produce or process petroleum products such as fuels, plastics, or pesticides. Exposure to benzene can result in drowsiness, dizziness, headaches, rapid or irregular heartbeat, and irritation to the eyes, skin, or respiratory system. Exposure to high amounts of benzene can cause unconsciousness, vomiting, and even death. In the long term, benzene can cause blood disorders, damage to the immune and reproductive systems, and cancer.

## Top 10 Unauthorized Nitrogen Oxides Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total NOx (lbs)
1	Martin County Gas Plant	Martin	601,926
2	Sale Ranch Gas Plant	Martin	393,772
3	Benedum Gas Plant	Upton	353,395
4	Freeport LNG Liquefaction Plant	Brazoria	206,408
5	Driver Gas Plant	Midland	187,626
6	Saxon H Battery	Glasscock	144,700
7	Freeport LNG Pretreatment Facility	Brazoria	125,339
8	Corpus Christi Liquefaction	San Patricio	101,197
9	Ineos Chocolate Bayou Plant	Brazoria	75,864
10	Sand Hills Gas Plant	Crane	68,917

Nitrogen oxides (NOx) are emitted through the burning of coal, oil, diesel, and natural gas. NOx are a primary ingredient in the formation of smog (ground level ozone), which can damage lungs and trigger asthma attacks. They also contribute to nitrogen pollution in waterways and low-oxygen “dead zones” that kill fish and other aquatic life. Short-term exposure to nitrogen oxides also can cause eye and skin irritation, difficulty breathing, abdominal pain, headaches, and nausea. Long-term exposure can lead to asthma and

respiratory infection, and in high enough levels, can harm developing fetuses and decrease female fertility.

### Top 10 Unauthorized Particulate Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total PM (lbs)
1	National Container Group	Harris	265,000
2	TPC Houston Plant	Harris	16,251
3	Sweeny Refinery and Petrochemical Plant	Brazoria	11,878
4	Borger Refinery	Hutchinson	10,900
5	Citgo Corpus Christi Refinery East Plant	Nueces	9,938
6	Pasadena Refining System PRSI	Harris	9,066
7	Big Spring Carbon Black Plant	Howard	3,410
8	ACME Brick Denton Plant	Denton	2,225
9	ACME Brick Bennett Plant	Parker	1,350
10	Port Arthur Refinery	Jefferson	1,438

Particulate matter (PM), or soot pollution, is microscopic particles that often form in the air from the emissions of chemicals, metals, and other pollutants from power plants, industrial facilities, and motor vehicles. Exposure to particulate matter can irritate the eyes, nose, and throat, and exposure to high amounts of particulate matter may cause low birth weight, preterm deliveries, and fetal and infant deaths. Over the long term, exposure to particulate matter can cause reduced lung function, development of chronic bronchitis, and premature death for those with heart or lung disease. Many sources are not required to report PM releases from their combustion units to STEERS and instead only report opacity, therefore actual PM emissions during upsets is higher than reported.

### Top 10 Unauthorized Sulfur Dioxide Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total SO2 (lbs)
1	Seminole Gas Processing Plant	Gaines	2,008,246
2	Sand Hills Gas Plant	Crane	1,702,322
3	McElroy Main Water Oil Treatment Facility	Crane	1,124,718
4	Wildcat Gas Plant	Winkler	747,807
5	North Riley Central Battery	Gaines	663,340
6	Goldsmith Gas Plant	Ector	640,955
7	McElroy Section 199 Emergency Flare	Crane	515,388
8	Big Spring Carbon Black Plant	Howard	396,141
9	North Cowden Unit South Central Tank Battery	Ector	389,394
10	Howard Glasscock Sour Gas Injection Facility	Howard	220,624



Sulfur dioxide (SO<sub>2</sub>) is a colorless gas with a strong, suffocating odor, and mainly comes from power plants that burn or process sulfur-rich fuels, like oil for electrical power and other industrial processes, as well as upstream oil and gas facilities. Sulfur dioxide pollution poses serious health problems particularly in large urban areas where there’s concentrated use of fossil fuels, as well as poorly controlled combustion events from industrial installations. EIP modeling demonstrates that flaring of natural gas in the Permian Basin is leading to violations of health/welfare-based SO<sub>2</sub> National Ambient Air Quality Standards in the Permian Basin.<sup>9</sup>

## Top 10 Unauthorized Hydrogen Sulfide Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total H <sub>2</sub> S (lbs)
1	Seminole Gas Processing Plant	Gaines	22,144
2	Sand Hills Gas Plant	Crane	22,104
3	Wildcat Gas Plant	Winkler	15,047
4	McElroy Main Water Oil Treatment Facility	Crane	12,429
5	Iron Eagle Unit A U49H	Reeves	9,861
6	Oahu Gas Plant	Pecos	8,053
7	N Cowden Unit TS 22	Ector	7,904
8	North Riley Central Battery	Gaines	7,058
9	Regency Field Services Pipeline Winkler County	Winkler	7,049
10	Goldsmith Gas Plant	Ector	6,959

Hydrogen sulfide (H<sub>2</sub>S) is a colorless, flammable gas that emits a “rotten egg” smell. Industrial facilities that often use hydrogen sulfide include petroleum refineries, natural gas plants, and wastewater treatment facilities. Hydrogen sulfide emissions also occur when upstream and midstream oil and gas sources flare natural gas. Short term exposure to hydrogen sulfide can lead to headaches, nausea, tremors, and skin and eye irritation. Long term exposure to hydrogen sulfide, however, can lead to more severe health impacts, including low blood pressure, loss of appetite and weight loss, fatigue, and eye inflammation.

## Top 10 Unauthorized Butadiene Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total 1,3-Butadiene (lbs)
1	TPC Houston Plant	Harris	12,797
2	Ineos Chocolate Bayou Plant	Brazoria	6,444
3	Chevron Phillips Chemical Port Arthur Facility	Jefferson	4,344
4	ExxonMobil Chemical Baytown Olefins Plant	Harris	2,812
5	Dow Texas Operations Freeport	Brazoria	2,535
6	Equistar Chemicals Channelview Complex	Harris	1,514
7	Chevron Phillips Chemical Cedar Bayou Plant	Harris	1,412
8	BASF TOTAL FINA NAFTA Region Olefins Complex	Jefferson	904
9	Port Arthur Refinery	Jefferson	738
10	ExxonMobil Oil Beaumont Chemical Plant	Jefferson	658

Butadiene is a colorless, highly flammable gas that has a gasoline-like odor. It is commonly produced from petroleum gases and is used to make rubber and plastics. Exposure to low levels of butadiene in the short term can cause irritation to the eyes, nose, throat, and lungs, and exposure to high levels can cause blurred vision, fatigue, headache, nausea, and fainting. Over the long term, exposure can cause cardiovascular diseases and cancer.

## Top 10 Unauthorized VOC Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total VOCs (lbs)
1	Wildcat Gas Plant	Winkler	692,925
2	University Roxanne Battery	Andrews	390,088
3	Sand Hills Gas Plant	Crane	385,929
4	University Pamela Battery	Andrews	374,272
5	Ineos Chocolate Bayou Plant	Brazoria	349,636
6	McAlister Booster Station	Midland	341,785
7	E-Line Booster Station	Upton	308,049
8	Benedum Gas Plant	Upton	269,600
9	University Caitlin Battery	Andrews	262,889
10	Martin County Gas Plant	Martin	253,677

Volatile organic compounds (VOCs) are a class of chemical compounds that include many highly-toxic and carcinogenic contaminants, like benzene, butadiene, and formaldehyde. VOCs also combine with NO<sub>x</sub> to form ozone. VOCs result from tank and pipe leaks at sources that process feedstocks and store products with high VOC content, diesel emissions, industrial emissions, and oil and gas extraction and processing. Short term exposure most commonly irritates the eyes and respiratory tract and causes headaches and dizziness. Over

the long term, exposure to VOCs can cause health effects, such as nausea, fatigue, loss of coordination, damage to the liver and kidneys, and, in some cases, cancer.

### Top 10 Unauthorized Hazardous Air Pollutants (HAPs) Polluters by Reported Emission Events, 2020

Rank	Facility Name	County	Total HAPs (lbs)
1	Celanese Bay City Plant	Matagorda	41,899
2	Blanchard Refining, Galveston Bay Refinery	Galveston	31,953
3	Noltex	Harris	21,991
4	Valero Corpus Christi Refinery, East Plant	Nueces	17,337
5	Sand Hills Gas Plant	Crane	13,742
6	Houston Plant	Harris	12,797
7	Pembroke Compressor Station	Upton	12,454
8	Wildcat Gas Plant	Winkler	10,272
9	Benedum Gas Plant	Upton	9,316
10	Chevron Phillips Chemical, Port Arthur Facility	Jefferson	9,048

EPA classifies almost 200 hazardous air pollutants (HAP), also known as air toxics, that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Many HAP, like benzene, ethylene oxide, formaldehyde, and 1,3 butadiene are also VOCs.

### Reported Illegal Pollution by Region, 2020 (Not Including CO<sub>2</sub>)

TCEQ Region	Total Pollution, Not Including CO <sub>2</sub> (Pounds)
Midland	30,692,722
Houston	5,544,656
Corpus Christi	2,886,183
Baumont	2,858,503
San Angelo	991,299
Lubbock	764,956
Abilene	520,256
Amarillo	396,232
Laredo	354,026
Waco	269,147
Dallas/Fort Worth	192,220
San Antonio	132,039
Tyler	128,467
El Paso	41,042
Harlingen	21,532
Austin	3,981

## Enforcement

Though the State of Texas is primarily responsible for enforcing antipollution laws, it rarely takes action against companies for allowing dangerous amounts of soot, sulfur dioxide, benzene and other pollutants to escape from plants during emission events.

In 2020, there were 2,980 reported emissions events across the state of Texas, which resulted in the release of 46 million pounds of dangerous pollutants. In 2020, TCEQ financially penalized companies \$1.2 million for 155 unauthorized air pollution events, a 30 percent increase from the 119 penalties in 2019.<sup>1011</sup> The bulk of these emissions events took place between 2017 and 2019, with a few in 2015 and 2016 and two in 2020, according to EIP's analysis of state data.

Looking back over the last nine years, the total number of enforcement orders filed by TCEQ for air pollution events is less than 3 percent of the total number of unauthorized air pollution events recorded by the agency in that time.<sup>12</sup>

The small size and infrequency of these fines is a major problem, because operators are less likely to spend the money required to fix known plant issues when fines for illegal pollution are not severe enough to offset the economic benefit of delaying investment in plant repairs, maintenance, and upgrades.

However, TCEQ has taken some action to address inadequate penalties. In response to a series of high-profile chemical disasters in 2019 and 2020 that TCEQ Executive Director Toby Baker described as “beyond the pale,” TCEQ adopted significant revisions to their penalty policy, recognizing that “we've been lagging around the idea of accountability.”<sup>13</sup> The changes include higher base penalties and counting of more violations. While the TCEQ initially proposed a revision that included a 20 percent penalty enhancement for emissions events in counties with a population of at least 75,000 people, this proposal was not included in the final revised penalty policy.<sup>14</sup>

In April 2021, the Texas House Environmental Regulations Committee passed House Bill 1820, which increased the maximum available fine from \$25,000 per day to \$50,000 per day and tripled the penalty if a chemical release resulted in the injury of an emergency responder.<sup>15</sup> This would have brought Texas's penalty policy in line with federal penalty caps for administrative Clean Air Act enforcement orders issued by EPA, \$48,762 per day, though maximum fines for judicial enforcement proceedings brought by EPA, \$102,638, are significantly higher than the cap the proposed in House Bill 1820.<sup>16</sup> However, the bill failed to receive a vote by the full House and did not become law.

## Notable Pollution Events in 2020

**TPC Houston Plant:** TPC Group, previously known as Texas Petrochemicals, is a chemical manufacturing company that sells products including butadiene, used to make synthetic rubber for tires and other products. The TPC Group, which operates plants in Houston and Port Neches facility has a “spotty environmental record,” according to the Houston

Chronicle.<sup>17</sup> In 2019, explosions at the company's Port Neches plant forced an evacuation of people living within four miles of the plant on the day before Thanksgiving. Then, on October 13, 2020, TPC Group notified TCEQ of an emissions event at its Houston Plant, located adjacent to the Houston neighborhoods of Park Place, Pecan Park, and Glenbrook, and less than two miles from the neighborhoods of Manchester, Galena Park, and Pasadena. The unauthorized release of pollution resulted from a loss of power which shut down the plant. TPC reported that improper installation "in the 1960s" of an electrical relay led to the power loss, including to pumps providing feedwater to boilers, which are used to create steam for the plant. Emergency shutdowns of the boilers resulted in the release of natural gas to flares. The company reported releasing 91,000 pounds of air pollution, including 11,200 pounds of 1,3 butadiene, a carcinogen. This emissions event and others led the TPC Houston Plant to rank first in the state for unauthorized release of butadiene, and second for particulate matter, in 2020.

**Valero Corpus Christi Refinery East Plant:** Valero's Bill Greehey Refineries in Corpus Christi, located along the Corpus Christi Ship Channel, produce 370,000 barrels of oil a day. The plants are adjacent to residential/suburban areas extending north of I-37 and less than 100 meters from an RV park.<sup>18</sup> One June 3, the company reported a heavy rainfall event "caused an accumulation of water on top of the floating roof" of a crude oil storage tank at the refinery's East Plant. "The weight of the water on the roof exceeded the buoyancy limits of the floating roof, causing the roof to partially sink." As a result, more than 75,000 pounds of chemicals were released into the air, including 4,100 pounds of benzene, a carcinogen. Just a month later, on July 6, 2020, the company reported a leak, "potentially due to moisture," which lasted seven days and released almost 3,000 pounds of benzene. The two releases led this facility to rank first in the state in 2020 for unauthorized releases of benzene.

**Oxy Seminole Gas Processing:** Occidental Petroleum's gas processing plant in Seminole, in far west Texas, removes impurities from raw natural gas to prepare for distribution in pipelines. On May 30, 2020, Oxy reported "intermittent flaring events due to the acid gas blowers being down. Operations installed and ran two active blowers and the spare blower ... we had in stock. All three blowers failed after a very short run time."<sup>19</sup> Over the course of the next two months, Oxy reported the unauthorized release of 597,734 pounds of sulfur dioxide pollution. This event was just one of 64 reported by Oxy to TCEQ in 2020.<sup>20</sup> Their total emissions led them to rank first in Texas for unauthorized releases of sulfur dioxide and hydrogen sulfide.

## Methodology

This report ranks the state's worst air polluters based on company self-reported emissions of air pollution from malfunctions and maintenance. The report is based on analysis of the reports filed with the State of Texas Electronic Emissions Reporting System for 2020. This database houses the reports that companies are required to file when their plants release air pollution during malfunctions and unauthorized maintenance events. This data is publicly

accessible and allows members of the public to track illegal releases of air pollution by county, or from any facility of interest.

This report's analysis includes malfunctions; unplanned maintenance, startups and shutdowns (MSS); and planned MSS events that resulted in unauthorized emissions, and does not include routine emissions or excess opacity events. Opacity is a measure of how much light is blocked by a release of particulate matter.

## Conclusion

Texas's infrequent enforcement of laws prohibiting unauthorized releases of dangerous pollution encourages companies to ignore problems that result in illegal releases of under-controlled or uncontrolled air pollution into neighborhoods. And, in the rare cases where Texas does enforce the law, the penalties it imposes are far lower than federal law allows and are not substantial enough to incentivize compliance.

These "upset" events emit a number of dangerous toxic chemicals, including butadiene, benzene, and hydrogen sulfide. Whether originating from West Texan oilfields or Gulf Coast industrial facilities, these hazardous pollution releases often occur adjacent to residential neighborhoods. Regulators' ongoing failure to crack down on the unpermitted emissions continues to put Texans at unnecessary risk of harmful health impacts. This is especially the case during a global pandemic. COVID-19 can be made more serious by exposure to hazardous air pollutants, a category of pollutants that includes things like ethylene oxide and benzene, which are known carcinogens.<sup>21</sup>



*Whether originating from West Texan oilfields or Gulf Coast industrial facilities, these hazardous pollution releases often occur adjacent to residential neighborhoods.*

Officials at the state and federal level have the ability to strengthen pollution regulations and alleviate the unnecessary public health burden faced by communities in close proximity to industrial facilities. For example, the upcoming "sunset review" of the TCEQ (a renewal of authorization) by the Texas Legislature<sup>22</sup> affords an opportunity for lawmakers to strengthen enforcement programs.

### Recommendations:

- Texas should more vigorously and consistently penalize illegal pollution releases to create a stronger financial incentive for plant owners to upgrade their facilities and protect public health. To this end, the state should adopt mandatory minimum fines.

- Texas should eliminate the “affirmative defense” loophole for illegal emissions, which functions as a near-automatic exemption from fines so long as illegal pollution releases are timely reported to the TCEQ.
- Texas should require all sources, but especially repeat violators, to provide evidence supporting any claim that malfunctions resulting in illegal pollution releases are not preventable before deciding not to pursue enforcement actions for penalties and cleanup.
- Texas should establish additional pollution monitors to accurately measure air quality impacts from unauthorized industrial emissions. The state should also work with federal and local agencies to implement continuous monitoring requirements for toxic pollutants.
- Texas should improve the TCEQ STEERS database reporting system and instructions so that facilities report uniformly, accurately, and in a way that enables citizens to easily determine the amount and type of pollution released during unauthorized events.
- Texas should provide emergency alerts to community members who ask for notification of releases of toxic chemicals by manufacturing plants.
- Texas should require repeat violators to undergo a 3<sup>rd</sup> party audit to identify changes in source design and operation that would reduce the frequency and severity of illegal pollution releases in the future and require violators to implement improvements identified through the audit process.

## Appendix

There are eight different pollutant types that the 516 chemicals emitted from the facilities included in the STEERS database in 2020 can be classified as:

- Nitrogen Oxides (NO<sub>x</sub>)
- Sulfur Oxides (SO<sub>x</sub>)
- VOCs
- Inorganics
- Particulate Matter
- Hazardous Air Pollutants (HAPs)
- Other
- and Unknown

The total reported breakdown or “upset” emissions of all these pollutant types from each facility in 2020 has been used to tally the below Top 5 lists. None of the lists include carbon dioxide emissions. In the Austin and Harlingen regions, only three facilities are listed, because only three reported emissions in 2020.

### *Top 5 Worst Polluters Statewide (Not Including CO<sub>2</sub>)*

Region	Facility	County	Amount Released (lbs)
<b>Statewide</b>	Sand Hills Gas Plant	Crane (West Texas)	2,337,652
<b>Statewide</b>	Seminole Gas Processing Plant	Gaines (West Texas)	2,228,737
<b>Statewide</b>	Martin County Gas Plant	Martin (West Texas)	2,058,250
<b>Statewide</b>	Wildcat Gas Plant	Winkler (West Texas)	1,594,112
<b>Statewide</b>	Corpus Christi Liquefaction	San Patricio (Gulf Coast)	1,571,044

### *Top 5 Worst Polluters by Region*

Region	Facility	County	Amount Released (lbs)
<b>Abilene</b>	Westbrook Unit North Lact Battery	Mitchell	148,103
<b>Abilene</b>	Targa Midstream Services Pipeline, Montague County	Montague	114,606
<b>Abilene</b>	Westbrook Southeast Unit	Mitchell	93,661
<b>Abilene</b>	Sykes Compressor Station	Runnels	60,768
<b>Abilene</b>	Salt Creek Gas Plant	Kent	34,212

<b>Amarillo</b>	Agrium US Borger Nitrogen Operations	Hutchinson	136,299
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<b>Amarillo</b>	Rock Creek Gas Plant	Hutchinson	58,013
<b>Amarillo</b>	Borger Refinery	Hutchinson	42,674
<b>Amarillo</b>	Sneed Booster Station	Moore	39,667
<b>Amarillo</b>	Transwestern P3 Compressor Station	Gray	36,073

<b>Austin</b>	La Grange Gas Processing Plant	Fayette	1,915
<b>Austin</b>	Samsung Austin Semiconductor	Travis	1,896
<b>Austin</b>	Truck Loading Terminal	Williamson	168

<b>Beaumont</b>	Port Arthur Refinery	Jefferson	888,810
<b>Beaumont</b>	Beaumont Gas to Gasoline Plant	Jefferson	628,977
<b>Beaumont</b>	Chevron Phillips Chemical, Port Arthur Facility	Jefferson	386,165
<b>Beaumont</b>	Exxonmobil Beaumont Refinery	Jefferson	309,018
<b>Beaumont</b>	Motiva Chemicals	Jefferson	224,790

<b>Corpus Christi</b>	Corpus Christi Liquefaction	San Patricio	157,1043
<b>Corpus Christi</b>	Formosa Point Comfort Plant	Calhoun	414,482
<b>Corpus Christi</b>	P Crain Unit A2 & Stanchos Unit A2	Dewitt	239,050
<b>Corpus Christi</b>	Valero Corpus Christi Refinery East Plant	Nueces	111,082
<b>Corpus Christi</b>	Javelina Gas Processing Facility	Nueces	86,680

<b>Dallas/Fort Worth</b>	Black Creek Compressor Station	Wise	76,101
<b>Dallas/Fort Worth</b>	Poly-America	Dallas	48,085
<b>Dallas/Fort Worth</b>	Exxon Mobil Irving Terminal	Dallas	38,297
<b>Dallas/Fort Worth</b>	Chevron Fort Worth Terminal	Tarrant	7,728
<b>Dallas/Fort Worth</b>	Acme Brick Bennett Plant	Parker	6,022

<b>El Paso</b>	Falcon Gas Plant	Culberson	26,678
<b>El Paso</b>	Hayhurst TX SE Zoelle 1 Section 9 CS And CTB	Culberson	7,466
<b>El Paso</b>	Marathon El Paso Refinery	El Paso	4,008
<b>El Paso</b>	Belmont Compressor Station	Culberson	1,852
<b>El Paso</b>	Remington Park Compressor Station	Culberson	590

<b>Harlingen</b>	Duke Energy Field Services Pipeline, Hidalgo County	Hidalgo	11,823
<b>Harlingen</b>	Duke Energy Field Services Pipeline, Brooks County	Brooks	9,529

<b>Harlingen</b>	Silas Ray Power Plant	Cameron	178
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<b>Houston</b>	Ineos Chocolate Bayou Plant	Brazoria	963,577
<b>Houston</b>	Freeport LNG Liquefaction Plant	Brazoria	831,004
<b>Houston</b>	Ethanol System 89 Sites Pipeline Facility	Harris	673,323
<b>Houston</b>	Freeport LNG Pretreatment Facility	Brazoria	506,415
<b>Houston</b>	National Container Group	Harris	286,200

<b>Laredo</b>	Etc Texas Pipeline La Salle County Segment	La Salle	137,319
<b>Laredo</b>	Gates 6 Facility	Webb	67,213
<b>Laredo</b>	Arnold No 10-H Production Facility	La Salle	41,565
<b>Laredo</b>	Irvin 550 Central Production Facility	La Salle	35,666
<b>Laredo</b>	Tilden Gas Plant	Mcmullen	34,060

<b>Lubbock</b>	Willard CO2 Separation Plant	Yoakum	21,4749
<b>Lubbock</b>	Mallet CO2 Recovery Plant	Hockley	13,5089
<b>Lubbock</b>	Denver Unit CO2 Recovery Plant	Yoakum	73,044
<b>Lubbock</b>	Campo Viejo Gas Processing Plant	Yoakum	57,305
<b>Lubbock</b>	Cornell Field Flare Site	Yoakum	49,666

<b>Midland</b>	Sand Hills Gas Plant	Crane	2,337,652
<b>Midland</b>	Seminole Gas Processing Plant	Gaines	2,228,737
<b>Midland</b>	Martin County Gas Plant	Martin	2,058,250
<b>Midland</b>	Wildcat Gas Plant	Winkler	1,594,111
<b>Midland</b>	Sale Ranch Gas Plant	Martin	1,428,745

<b>San Angelo</b>	Midkiff Gas Plant	Reagan	228,708
<b>San Angelo</b>	Saxon Booster	Reagan	189,609
<b>San Angelo</b>	Gateway Gas Plant	Reagan	149,176
<b>San Angelo</b>	Duke Energy Field Services Pipeline Crockett County	Crockett	103,399
<b>San Angelo</b>	Duke Energy Field Services Pipeline Sutton County	Sutton	98,198

<b>San Antonio</b>	Urban Compressor Station	Frio	36,594
<b>San Antonio</b>	Georg EF Nos 18H 19H And 20H Production Facility	Karnes	34,714
<b>San Antonio</b>	Kotara Production Facility	Karnes	16,485
<b>San Antonio</b>	Duke Energy Field Services Pipeline Edwards County	Edwards	8,631
<b>San Antonio</b>	The San Antonio Refinery	Bexar	8,351

<b>Tyler</b>	Eastman Chemical Texas Operations	Harrison	65,427
<b>Tyler</b>	Pittsburg Gas Plant	Camp	28,729
<b>Tyler</b>	Henderson Smackover Unit	Henderson	15,724
<b>Tyler</b>	Bulldog Gas Plant	Panola	13,838
<b>Tyler</b>	Panola-Duke Central Delivery	Panola	4,278

<b>Waco</b>	Goen Steephollow 5 Compressor Station	Brazos	236,264
<b>Waco</b>	Aker Plant	Freestone	18,453
<b>Waco</b>	Enbridge Pipelines Freestone County	Freestone	14,217
<b>Waco</b>	Space Exploration Technologies Rocket Development Facility	Mclennan	110
<b>Waco</b>	Owens Brockway Glass Container	Mclennan	101

## End Notes

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- <sup>1</sup> The data in this report comes from State of Texas Environmental Electronic Reporting System (STEERS) maintained by the Texas Commission on Environmental Quality, available at: <https://www.tceq.texas.gov/airquality/emission-events>
- <sup>2</sup> Divy Malik, Parth Manchanda, Theo Jan Simons, and Jeremy Wallach. “The impact of COVID-19 on the global petrochemical industry” *McKinsey & Company*. 28 October, 2020. Accessed 23 September, 2021 <https://www.mckinsey.com/industries/chemicals/our-insights/the-impact-of-covid-19-on-the-global-petrochemical-industry>
- <sup>3</sup> Texas Commission on Environmental Quality, “Annual Enforcement Report: Fiscal Year 2020,” November 2020, pages 5-4. Link: [https://www.tceq.texas.gov/assets/public/compliance/enforcement/enf\\_reports/AER/FY20/enfrptfy20.pdf](https://www.tceq.texas.gov/assets/public/compliance/enforcement/enf_reports/AER/FY20/enfrptfy20.pdf)
- <sup>4</sup> Karn Vohra<sup>1</sup>, Alina Vodonos, Joel Schwartz, Eloise A. Marais, Melissa P. Sulprizio, Loretta J. Mickley. “Global mortality from outdoor fine particle pollution generated by fossil fuel combustion: Results from GEOS-Chem.” February 2021.
- <sup>5</sup> Caiazzo, Fabio, Akshay Ashok, Ian A. Waitz, Steve H.L. Yim, and Steven R.H. Barrett. “Air pollution and early deaths in the United States. Part I: Quantifying the impact of major sectors in 2005.” May 31, 2013. Accessed August 25, 2020. <https://coolgreenschools.com/wpcontent/uploads/2015/07/US-airpollution-paper.pdf>, Table 5.
- <sup>6</sup> Roy, Ananya, Fullmer, Rachel, Proville, Jeremy, and Grace Tee Lewis. “Texas Clean Air Matters.” *Environmental Defense Fund*. 11 May 2020. Accessed 22 June 2020. <http://blogs.edf.org/texascleanairmatters/>
- <sup>7</sup> Texas HB 2912, which was adopted during the 77th Legislative Session on September 1, 2001.
- <sup>8</sup> Texas Commission on Environmental Quality, “Annual Enforcement Report: Fiscal Year 2020,” November 2020, pages 5-4. Link: [https://www.tceq.texas.gov/assets/public/compliance/enforcement/enf\\_reports/AER/FY20/enfrptfy20.pdf](https://www.tceq.texas.gov/assets/public/compliance/enforcement/enf_reports/AER/FY20/enfrptfy20.pdf)
- <sup>9</sup> “Sour Wind in West Texas,” The Environmental Integrity Project, May, 09, 2019. <https://environmentalintegrity.org/reports/sour-wind-in-west-texas/>
- <sup>10</sup> “Illegal Air Pollution in Texas 2020,” Catherine Fraser, Environment Texas, Frontier Group.
- <sup>11</sup> Texas AG Public Information Request No. R010411, Sept. 30, 2021.
- <sup>12</sup> “Illegal Air Pollution in Texas 2020,” Catherine Fraser, Environment Texas, Frontier Group.
- <sup>13</sup> One Breath Partnership. “Beyond The Pale.” Accessed 23 September, 2021 <https://www.facebook.com/watch/?v=360175848433957>
- <sup>14</sup> Beveridge & Diamond PC. “TCEQ Issues Revised Penalty Policy” *National Law Review*. 16 February 2021. Accessed 23 September, 2021 <https://www.natlawreview.com/article/tceq-issues-revised-penalty-policy>
- <sup>15</sup> Environment Texas. “House panel backs tougher fines against polluters.” Accessed 23 September, 2021 <https://environmenttexas.org/news/txe/house-panel-backs-tougher-fines-against-polluters>
- <sup>16</sup> *Civil Monetary Penalty Inflation Adjustment*, 85 Fed. Reg. 83818, 83821 (December 23, 2020)
- <sup>17</sup> Jordan Blum. “Houston company TPC Group has long history, spotty environmental record” *Houston Chronicle*. 27 November 2019. <https://www.chron.com/business/article/Houston-company-TPC-Group-has-long-history-14867950.php>
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- <sup>19</sup> Texas Commission on Environmental Quality. “Air Emission Event Report Database Incident 336335.” Accessed 23 September 2021. <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=336335>
- <sup>20</sup> Neighborhood Witness. “Amerada Hess Seminole Gas Processing Plant” Accessed 23 September 2021. <http://www.neighborhoodwitness.org/database/RN103758470>
- <sup>21</sup> Petroni, Michael, Hill, Dustin, Younes, Lylla, Barkman, Liesl, Howard, Sarah, Howell, Brielle, Mirowsky, Jaime, and Mary Collins. “Hazardous air pollutant exposure as a contributing factor to COVID-19 mortality in the United States.” *Environmental Research Letters*. 11 September 2020. Accessed 11 September 2020. – should this be 2021? <https://iopscience.iop.org/article/10.1088/1748-9326/abaf86>

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<sup>22</sup> Texas Sunset Advisory Commission. “Texas Commission on Environmental Quality.” Accessed 23 September 2021. <https://www.sunset.texas.gov/reviews-and-reports/agencies/texas-commission-environmental-quality>