



THE COST OF DOING BUSINESS?

THE PETROCHEMICAL INDUSTRY'S TOXIC
POLLUTION IN THE USA

AMNESTY
INTERNATIONAL



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MAP



KEY TERMS

GLOSSARY

EPA	The Environmental Protection Agency (EPA) is the federal agency responsible for environmental law enforcement in the United States of America (USA).
ENVIRONMENTAL JUSTICE	According to the EPA: “Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” ¹
ENVIRONMENTAL RACISM	Any environmental policy, practice, law or regulation that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race, colour, descent and national and ethnic origin. ²
FENCELINE	Property boundary of refineries and petrochemical facilities.
FLARING	Burning of excess gases containing combustible components used by refineries and chemical plants.
FENCELINE COMMUNITIES	Groups of people who live, work or attend school within a three-mile radius of a petrochemical facility and bear the brunt of petrochemical pollution.
LATINX / HISPANIC	Latinx is a gender-inclusive term for people of Latin American heritage in the USA, sometimes used interchangeably with “Hispanic.” ³ Importantly, “Latinx” covers a diverse group of people of different national origins, cultural backgrounds, social classes, migration histories and experiences of racialization and racism within the USA. ⁴ This report will use the term Latinx/ Hispanic as interchangeable, in accordance with the self-identification of participants and the political, cultural and racial context of the USA.

- 1 EPA, “Environmental justice”, <https://www.epa.gov/environmentaljustice> (accessed on 16 August 2023).
- 2 Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia and Related Intolerance (Special Rapporteur on racism), Report: *Ecological Crisis, Climate Justice and Racial Justice*, 25 October 2022, UN Doc. A/77/549, para. 45.
- 3 Hispanic often refers to people with a Spanish-speaking country background. The term Latinx has been of relevance to LGBTI and queer people since it contests the gender-specific nature of the category “Latino”, which is commonly used as an umbrella term to refer to communities of Latin American origin in the USA. Lauren E. Gómez describes “Latinos” as “people who currently live in the United States—whether or not they are American citizens and/or were born in this country—who are descendants of migrants or who themselves migrated from Latin America, and specifically from the former colonies of Spain in the Western Hemisphere. So defined, Latinos are the product two successive waves of colonization, first by Spain and then by the United States, which has significant implications for how they have experienced racism and racialization in the United States.” See LAURA E. GÓMEZ, *INVENTING LATINOS: A NEW STORY OF RACISM* (2020). Latinx is a political and social construction rooted in a particular time and place and cognizable only in relation to other, known racial classifications. In general, this term should not be used to refer to persons or communities outside of the USA, particularly in Latin America.
- 4 See Rubén G. Rumbaut, “Pigments of our imagination: On the racialization and racial identities of ‘Hispanics’ and ‘Latinos,’” in José A. Cobas, Jorge Duany, and Joe R. Feagin (editors), *How the United States Racializes Latinos: White Hegemony and its Consequences*, 2016: “Although a single label implies otherwise, ‘Hispanics’ or ‘Latinos’ are not a homogeneous entity, and should not be presumed to be so. Even the newcomers among them differ notably in national and social-class origins, cultural backgrounds, phenotypes (many mixing indigenous pre-Columbian ancestries with European, African, and Asian roots), migration histories, legal statuses, and contexts of reception in the United States. Nonetheless, despite sometimes profound group and generational differences among the nationalities so subsumed, the tens of millions of persons so classified do share a common label that symbolizes a minority group status in the United States, a label developed and legitimized by the state, diffused in daily and institutional practice, and finally internalized—and racialized—as a prominent part of the American mosaic. That this outcome is, at least in part, a self-fulfilling prophecy does not make it any less real”, p. 52.

PETROCHEMICALS	Chemical raw materials used in the production of chemical materials and finished products, derived primarily from fossil fuels.
PM_{2.5}	Fine particulate matter (PM) of 2.5 micrometres or less in diameter. Exposure has been linked to respiratory damage, lung cancer, adverse pregnancy outcomes and cardiovascular problems. ⁵
RACIALIZED PEOPLE	The term race is normally used to refer to a classification of persons in accordance with factors such as phenotype, biology, ancestry, and descent. ⁶ Race should not be used as a concept rooted in biology. Instead, it should be viewed as a social construct that may have both identity and status characteristics. ⁷ Racialized people are those who have socially constructed ethnic and/or religious identities externally projected on them based on social structures and power relations. The process of racialization triggers systemic discriminatory practices by State institutions, private entities and individuals.
SACRIFICE ZONE	According to the United Nations Special Rapporteur on human rights and the environment: “A sacrifice zone can be understood to be a place where residents suffer devastating physical and mental health consequences and human rights violations as a result of living in pollution hotspots and heavily contaminated areas.” ⁸
TCEQ	Texas Commission on Environmental Quality (TCEQ) is the environmental agency of the state of Texas, responsible for administering and enforcing all environmental laws and regulations within its jurisdiction.

5 Centers for Disease Control and Prevention, “Particle pollution”, https://www.cdc.gov/air/particulate_matter.html (accessed on 21 July 2023).

6 As a system of classification, the concept of race is inextricably linked to the European colonization process since it served both as a rationale to justify the colonial project as well a tool to stratify colonial societies.

7 Although skin colour is often used to make classifications of a person’s race, the term race should not be used as equal to skin colour.

8 Special Rapporteur on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment (Special Rapporteur on human rights and the environment), Supplementary information to the Report of the Special Rapporteur: *Additional sacrifice zones*, 2 March 2022, UN Doc. A/HRC/49/53, para. 3.

ACRONYMS

C.H.I.C.	Channelview Health & Improvement Coalition
CAER	Community Awareness Emergency Response
CAPLE	Community Advisory Panel to LyondellBasell and Equistar
CDC	Centers for Disease Control and Prevention
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CEER	Coalition for Environment, Equity, and Resilience
CERD	International Convention on the Elimination of all Forms of Racial Discrimination
CESCR	Committee on Economic, Social and Cultural Rights
COPD	Chronic obstructive pulmonary disease
CO₂e	Carbon dioxide equivalent
CRC	Convention on the Rights of the Child
CSB	Chemical Safety and Hazard Investigation Board
ESG	Environmental, social and governance
EU	European Union
HRM	Houston Regional Monitoring Corporation
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ITC	Intercontinental Terminals Company
LEPCs	Local Emergency Planning Committees
OCA	Offsite Consequence Analysis
US	United States
USA	United States of America
USACE	US Army Corps of Engineers
VOCs	Volatile organic compounds
WHO	World Health Organization

1. EXECUTIVE SUMMARY

Texas, USA is home to one of the world's largest petrochemical complexes. The Houston Ship Channel is a 52-mile waterway surrounded by over 600 industrial plants that convert oil and gas into chemicals that form the building blocks of products such as plastics, fertilizer and pesticides. These facilities operate 24 hours a day, seven days a week, spewing toxic pollution into the air and water, which harms human health, the environment and climate. Along this sprawling petrochemical corridor, steam and smoke billow from imposing industrial facilities, flare stacks burn day and night, and the thick smog is visible for miles.

The people who live, work and go to school alongside this polluting industry are exposed daily to a toxic cocktail of hazardous chemicals in the air they breathe. Chemical odours routinely seep into homes and schools, while residents are kept awake at night from the loud rumbling of industry. These communities are comprised of disproportionately low-income, racialized people and people with limited English proficiency, a form of racism known as environmental racism.

Fenceline communities and plant workers frequently face explosions, chemical fires and toxic spills that can lead to evacuation, property damage, injuries and even death. Local residents struggle to access vital and potentially life-saving information in real-time. In 2023 alone, there were at least seven petrochemical disasters, including six fires, along the Houston Ship Channel. Chemical disasters occur so frequently that there is a widely held belief that they are simply the cost of doing business.

Despite the ongoing damage caused to human rights, the environment and climate, the industry is rarely held to account by the oil-and-gas-friendly state of Texas. The state environmental regulator, the Texas Commission on Environmental Quality (TCEQ) routinely renews operating permits for repeat offenders and rubber stamps expansion plans, giving the greenlight to these companies to continue polluting. UN experts have described places “where residents suffer devastating physical and mental health consequences and human rights violations as a result of living in pollution hotspots and heavily contaminated areas” as “sacrifice zones”. The Houston Ship Channel is heavily contaminated from decades of industrial pollution, including from the petrochemical industry. The right to a clean, healthy and sustainable environment has been infringed upon to such an extent, that Amnesty International has determined that the Houston Ship Channel is a “sacrifice zone”.

Often sacrifice zones are better described as “racial sacrifice zones”, disproportionately concentrated in neighbourhoods, regions and countries populated by racialized people. This assessment reflects the reality for many racialized communities along the Houston Ship Channel.

REPORT OBJECTIVES

This report examines the human rights, environmental and climate harms linked to the operations of the entire petrochemical industry along the Houston Ship Channel. In addition to broad conclusions on the impact of all of the companies located in the Houston Ship Channel, the report presents illustrative case studies that exemplify operating practices that contribute to these harms, involving three petrochemical producing facilities – **ExxonMobil Baytown Complex**, **LyondellBasell Channelview Complex** and **Shell Chemicals Deer Park** – and one petrochemical storage facility, **Intercontinental Terminals Company (ITC) Deer Park**.

Amnesty International conducted research between January and December 2023. Information was obtained from a variety of sources, including: interviews and meetings with stakeholders; documentation provided by interviewees; corporate disclosure; case law; and enforcement and

compliance data. Amnesty International conducted interviews with 14 subject matter experts, in addition to 29 people who currently or used to live, work or attend school within a three-mile radius of a petrochemical facility along the Houston Ship Channel. Amnesty International also exchanged letters with the petrochemical companies and relevant US state and federal agencies, reviewed the responses (annexed to this report) and took appropriate account of the information that was provided.

The findings demonstrate that irresponsible operating practices by petrochemical companies along the Houston Ship Channel undermine the enjoyment of several human rights of fence-line communities, plant workers and first responders, including the right to a clean, healthy and sustainable environment, the right to health, the right to equality and non-discrimination, and even the right to life.

The situation is worsening. The fossil fuel industry has identified plastics production as a lifeline to offset anticipated losses from the energy transition, driving a huge expansion of the petrochemical industry worldwide. In the USA alone, more than 120 new petrochemical projects are planned. In addition to threatening greenhouse gas emission reduction targets necessary to limit the rise in global temperatures, the industry's expansion will add fuel to this human rights crisis.

THE RIGHT TO A CLEAN, HEALTHY AND SUSTAINABLE ENVIRONMENT

The UN resolution on the human right to a clean, healthy and sustainable environment recognizes that the impact of climate change and environmental damage – such as the pollution of air, land and water – interferes with the enjoyment of this right and “has negative implications, both direct and indirect, for the effective enjoyment of all human rights.” The right must be enjoyed without discrimination on the grounds of race, age, ethnicity or any other factor.

HUMAN RIGHTS IN THE CONTEXT OF BUSINESS ACTIVITIES

States have an obligation under international law to respect, protect and fulfil human rights. The UN Guiding Principles on Business and Human Rights (UN Guiding Principles) explicitly recognize that such duty applies in the context of corporate activities. The UN Guiding Principles provide that states should enforce laws requiring companies to respect human rights. In the context of the petrochemical industry in the USA, environmental laws at the state and federal levels have been enacted to minimize pollution and protect the environment. Petrochemical facilities are required to adhere to limits established by their operating permits on the amounts of pollutants they release into the air.

Companies also have a responsibility to respect all human rights wherever they operate and throughout their operations. This corporate responsibility to respect human rights is independent of a state's own human rights obligations and exists over and above compliance with national laws and regulations. The UN Guiding Principles establish that companies should have in place an ongoing and proactive human rights due diligence process to identify, prevent, mitigate and account for how they address their impacts on the rights of people affected by their activities.

When human rights abuses occur, international law requires that the perpetrator be held to account and the victim receive an effective remedy. The right to an effective remedy encompasses the victim's right to equal and effective justice; adequate, effective, and prompt reparation for harm suffered, and access to relevant information concerning violations and reparation mechanisms.

PETROCHEMICAL INDUSTRY HARMS THE RIGHT TO A HEALTHY ENVIRONMENT

Harmful air and water pollution, in addition to noise, light and odour pollution from petrochemical operations, undermines the right to a clean, healthy and sustainable environment. This has negative implications, both direct and indirect, for the effective enjoyment of all other human rights.

The quality of air that fenceline communities along the Houston Ship Channel breathe is among the lowest in the USA. Petrochemical companies routinely flout their permitted limits on air pollution, as evidenced by their self-reported data to TCEQ. These large bursts of pollution expose communities to huge pollution spikes, in addition to the chronic exposure they face from regular operations. These unauthorized pollution releases can last from a few hours to several days or weeks; in some instances, a single unauthorized pollution release can exceed a facility's annual pollution limits.

Residents from all eight fenceline communities included in the research told Amnesty International they were impacted by odour pollution. Teachers described odours seeping into their classrooms and schoolchildren experiencing nausea, headaches and eye and throat irritation. Residents described how they were impacted by chemical odours, sometimes daily. Alondra Torres, a Channelview resident, said:

“It pretty much affects me and my family every single day. There’s always smells in the air, every time you step outside for a little while, you kind of get a gritty taste in your mouth. There have been times when I feel really uncomfortable... and I get a headache due to the smells... The smell is super strong, I can even smell it from the inside.”

TOXIC POLLUTION AND THE RIGHT TO HEALTH

The World Health Organization (WHO) has identified air pollution as “the single largest environmental risk to human health”. The petrochemical industry is a major source of air pollution along the Houston Ship Channel, emitting volatile organic compounds (VOCs), greenhouse gases and particulate matter. While it is almost impossible to attribute the cause of a person's disease or illness to a particular company in a region with multiple industrial sources of pollution, petrochemical pollutants are known to harm human health.

Exorbitant healthcare costs in the USA prevent many from accessing healthcare, and Texas has the highest rate of uninsured people in the country. Community members reported a range of adverse health outcomes – including cancers, respiratory issues, irritation, cardiovascular disease and fertility and pregnancy complications – they believe are linked to petrochemical pollutants due to their proximity to industry. Elevated cancer rates are a particular concern. “James” (not his real name) told Amnesty International:

“My mom, she recently had uterine cancer. A lot of people have cancer, breathing difficulties. Maybe it’s just life, but you live where you live – it makes you wonder. Who is actually going to say it? The doctor can’t tell you, ‘you got this cancer because you live next to this plant.’ But there’s no way living right next to them is good. It isn’t.”

Petrochemical pollutants and their health impacts



Health effects of PM_{2.5}

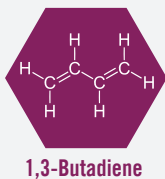
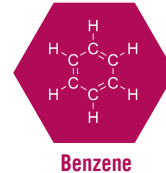
Eye irritation; lung and throat irritation; trouble breathing; lung cancer; problems with babies at birth (for example, low birth weight).

It can create additional risks for people with existing cardiovascular disease, such as heart attacks and chest pain.⁹

Health effects of Benzene

Short-term exposure: irritation to the respiratory tract and eyes; skin irritation; drowsiness; dizziness; elevated heart rate; headaches; nausea; shortness of breath.

Long-term exposure: blood cancers such as leukaemia and lymphoma.¹⁰



Health effects of 1,3-Butadiene

Short-term exposure: irritation of the eyes, nose, throat and lungs.

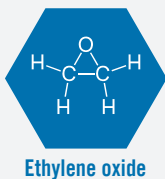
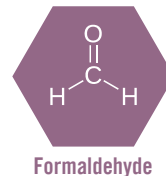
Long-term exposure: elevated rates of leukaemia in children; increased risk of cardiovascular diseases.¹¹

Health effects of Formaldehyde

Low-level exposure may cause irritation to eyes, nose, throat, airways and skin.

Some groups are more sensitive to the effects of formaldehyde, such as the very young, older people, people with asthma and other respiratory issues.

Chronic exposure to high levels has been linked to rare nose and throat cancers in workers.¹²

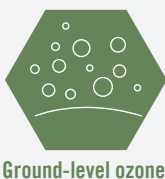
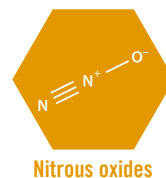


Health effects of Ethylene oxide

Exposure can cause headaches; breathing difficulties; tiredness; vomiting; diarrhoea; eye and skin burns; reproductive problems.¹³

Health effects of Nitrous oxides

Low levels can irritate the eyes, nose, throat and lungs, and cause coughs, shortness of breath, tiredness and nausea. More than a day of exposure can lead to fluid build-up in the lungs.¹⁴



Health effects of Ground-level ozone

Increases rates of asthma and chronic respiratory illness, as well as other sorts of breathing problems and reduced lung function.¹⁵

9 CDC, "Particle Pollution", https://www.cdc.gov/air/particulate_matter.html (accessed on 22 July 2023).

10 IARC, *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*, 2018, Volume 120, <https://monographs.iarc.who.int/wp-content/uploads/2018/06/mono100F-24.pdf>, pp. 290-291.

11 Agency for Toxic Substances and Disease Registry, "Public Health Statement for 1,3-Butadiene", March 2011, <https://wwwn.cdc.gov/TSP/PHS/PHS.aspx?phsid=457&toxid=81>

12 Agency for Toxic Substances and Disease Registry, "Formaldehyde and your health", <https://www.atsdr.cdc.gov/formaldehyde> (accessed on 21 July 2023).

13 CDC, "Ethylene Oxide", <https://www.cdc.gov/niosh/topics/ethyleneoxide/default.html> (accessed on 22 July 2023).

14 ATSDR, "ToxFAQs™ for Nitrogen Oxides", <https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=396&toxid=69> (accessed on 21 July 2023).

15 WHO, "Urban green spaces" (previously cited).

Concerns over elevated cancer rates are not unfounded. Studies have identified cancer clusters in the region, while high levels of benzene and 1,3-butadiene in Houston's air have been linked to elevated rates of childhood leukaemia compared to areas with lower levels of those chemicals. Amnesty International researchers spoke to residents whose entire families, spanning generations, have suffered health effects believed to be linked to the petrochemical industry. One person said nearly every household on their street had been impacted by a cancer diagnosis.

The right to health must be enjoyed without discrimination, yet adverse health impacts of the petrochemical industry are not borne equally. The same structural factors that mean fenceline communities are disproportionately low-income and racialized mean they are also more likely to have higher rates of pre-existing health conditions, such as cardiovascular disease, diabetes, lung disease and other respiratory issues, such that exposure to pollutants can be especially harmful. Within these communities, people who work outdoors, children, older people, and women may face a higher likelihood of harm for physiological reasons.

While Amnesty International researchers were conducting research along the Houston Ship Channel in 2023, a fire broke out at Shell Deer Park Chemicals. The fire lasted for three days and resulted in the release of over 800,000 pounds of airborne contaminants, including benzene and 1,3-butadiene. The WHO has said that exposure to benzene is "a major health concern" and, as such, "no safe level of exposure can be recommended".

Major chemical disasters that pose a risk to the health of fenceline communities along the Houston Ship Channel are all too common. Several interviewees recalled the March 2019 fire that broke out at the petrochemical storage facility ITC Deer Park as a particularly notorious incident. The fire burned for over three days and sent a cloud of black smoke over the region so vast that the National Weather Service tracked it for weeks. When news of the fire first broke out, "Hazel" (not her real name) rushed to evacuate with her children. She recalls struggling to breathe and, upon leaving the house, covered her children's faces with wet rags to try and stop them inhaling harmful chemicals. She said:

"We didn't know if we were breathing poison, what the long-term effects were. They were beginning to close the roads around us, so we had to quickly make a decision to leave... We were lucky we were able to evacuate, a lot of people didn't have that luxury."

After the authorities had lifted public health measures, "Hazel", like many others, returned, believing it was safe to do so. Years later, residents learned that benzene in the air spiked to high levels for more than two weeks after public health measures were lifted, but they were never warned.

Residents worry about the safety of relatives and friends working in the industry. Plant workers are frequently harmed during chemical disasters. In February 2023, a jury awarded US\$28,951,000 to five plant workers who were injured by an explosion at the ExxonMobil Baytown Complex in July 2019.

THE RIGHT OF ACCESS TO INFORMATION

Residents who live in the vicinity of petrochemical facilities struggle to access real-time information about the risks they face, hindering their ability to make informed decisions about their and their families' health and safety. In the absence of an effective emergency alert system to notify residents of toxic releases, they typically receive information via social media, friends, local news, or by observing smoke and odours first-hand. Information from both local agencies and industry, when provided, is too often delayed, sparse, conflicting, and largely inaccessible to those with limited English proficiency.

THE RIGHT TO PARTICIPATION

Communities face several barriers to meaningful participation, including inadequate access to information, language accessibility and an opaque permitting process. The hundreds of petrochemical companies along the Houston Ship Channel are constantly applying for permits and permit renewals, however, communities are often unaware of planned expansions of facilities in their neighbourhoods and how to engage in the permitting process. This limits their ability to raise concerns about industry, object to its expansion and hold polluters accountable.

Amnesty International spoke to residents who opposed a permit application for LyondellBasell's Channelview Complex. They were concerned about the facility's noncompliance with existing permit limits and human rights harms. On the day of the hearing, Channelview residents witnessed black smoke coming from the complex, resulting from a leak that lasted over 101 hours and released over 88,000 pounds of pollution, including 1,3 butadiene, benzene, ethylene and toluene.

Amnesty International researchers attended a hearing for the renewal of ITC Deer Park's operating permit, where community members posed questions to TCEQ and ITC on the impacts of the 2019 fire and the facility's ongoing record of non-compliance. "Hazel", who had evacuated with her young children because of the fire, said it was the first time she had seen someone from ITC. She said: "I don't think they should be operating in this area, with an elementary school a mile away." At the time of publication, the permit is pending.

STATE FAILURE TO PROTECT AGAINST CORPORATE ABUSE

For decades petrochemical facilities have been polluting the environment and endangering the rights of fenceline communities, yet the authorities have failed to take adequate action to regulate the industry and enforce compliance with domestic legislation and international human rights standards. State records show TCEQ imposed penalties in less than 3% of cases of unpermitted pollution releases in recent years. A review by the body that evaluates Texas agencies found TCEQ commissioners have become "reluctant regulators" that encourage industry to "self-police".

Companies can avoid penalties for pollution releases above their permit limits by routinely invoking the "affirmative defense" – a legal loophole in Texas that waives enforcement for air pollution the company itself reports as "unplanned and unavoidable". This loophole allows polluters to avoid accountability and creates an incentive to delay investing in measures necessary to prevent equipment failures and breakdowns that lead to huge pollution releases, at the expense of fenceline communities. When penalties are issued, they are insignificant when compared to the enormous profits the petrochemical companies generate and seen as just another cost of doing business.

Commenting on the lack of enforcement by authorities, "Sade" (not her real name) said:

"They don't care, we're minorities. That's the truth. That's why so many lives have been lost over the years."

ALL PETROCHEMICAL COMPANIES MUST UNDERTAKE EFFECTIVE DUE DILIGENCE TO

IDENTIFY, PREVENT, MITIGATE AND ACCOUNT FOR NEGATIVE IMPACTS ON HUMAN RIGHTS, THE ENVIRONMENT AND CLIMATE ARISING FROM THEIR OPERATIONS.



FAILURE OF PETROCHEMICAL COMPANIES TO RESPECT HUMAN RIGHTS

Multiple sources of industrial pollution along the Houston Ship Channel make it difficult to disaggregate the harm that each individual company causes. This is to the benefit of the polluters, who can evade accountability for harms caused by their pollution and lay blame elsewhere. While not solely responsible for all industrial pollution along the Ship Channel, the four facilities included in this report have a history of repeated non-compliance with clean air and water regulations and therefore are significant contributors to the toxic pollution faced by fenceline communities.

This report summarizes just a few of the many incidents where both routine operations and unplanned releases at the four petrochemical facilities have led to adverse impacts on workers, communities and the environment. The harms of toxic pollution are well known, however, ongoing violations – such as air pollution events that exceed permitted limits, which the companies are required to report to TCEQ – indicate they have failed to take the necessary measures to make their operations rights-respecting.

All petrochemical companies must undertake effective due diligence to identify, prevent, mitigate and account for negative impacts on human rights, the environment and climate arising from their operations. Amnesty International wrote to the companies included in the report asking questions about their operations and due diligence. In their responses ExxonMobil, Shell and LyondellBasell provided general statements reaffirming their commitments to respecting human rights but did not provide detailed information on what their due diligence actually entails. ITC did not respond. Only LyondellBasell responded to Amnesty International's findings, shared with the companies in a letter ahead of publication. It said the letter "includes statements and implications about the operations of Equistar Chemicals, LP and Lyondell Chemical Company at Channelview that we do not consider to be accurate or fair."

The Houston Ship Channel's location on the Gulf of Mexico means petrochemicals are easily shipped across the world, including to Europe, a major market for US petrochemicals. ExxonMobil, Shell Chemicals and LyondellBasell all export petrochemicals to Europe; the largest receiving countries are Belgium, France, Italy and the Netherlands. The opaque nature of the petrochemical supply chain makes it difficult to identify downstream customers, but these products end up in items such as plastic bottles, containers, bags and drinking straws across Europe (and elsewhere).

The broad range of harms that communities experience due to corporate actions along the Houston Ship Channel has implications for Europe, as both a recipient of petrochemical goods and a location where many multinational petrochemical companies operating along the Ship Channel are domiciled. Under new European Union (EU) corporate accountability legislation, EU domiciled petrochemical companies and EU-based buyers of Houston Ship Channel petrochemical products will be required to conduct due diligence to identify, address and remediate their human rights, environmental and climate impacts.



Facility	Operations (size & products)	Operating company/ies	Ultimate parent company	Number of air pollution violations (20-years)	Number of people living within a 3-mile radius ¹⁶
ExxonMobil Baytown Complex	3,400 acres Ethylene, propylene, benzene, butadiene	ExxonMobil Corporation	ExxonMobil Corporation (USA)	1,013, including 77 since 2020	39,193
ITC Deer Park	265 acres Handles liquid chemicals, petroleum & gases, (propylene, butadiene, etc.)	Intercontinental Terminals Company LLC	Mitsui & Co. Ltd (Japan)	49, including 10 since 2020	5,380
LyondellBasell Channelview Complex	4,000 acres Ethylene, butadiene and benzene	Equistar Chemicals LP, LLC; Lyondell Chemical Company	LyondellBasell Industries N.V. (Netherlands)	463, including 61 since 2020	30,039
Shell Chemicals Deer Park	1,500-acres ¹⁷ Ethylene, phenol, benzene	Shell Chemical L.P.	Shell plc (UK)	790, including 19 since 2020	28,433

¹⁶ According to data held on EPA's Enforcement and Compliance History Online database, based on census data

¹⁷ Deer Park Refining Limited Partnership, which Shell had a 50% interest in until 2022, also sits on the site.

CONCLUSION

From the USA to Cambodia, Taiwan and beyond, a growing body of research reveals how human rights, the environment and climate are threatened by the petrochemical industry. Along the Houston Ship Channel, communities face devastating harms because of the industry's toxic pollution and the failure of the US government to protect against corporate abuse. Petrochemical companies, including ExxonMobil, Shell, LyondellBasell and ITC, must take steps to prevent further adverse impacts on communities, the environment and climate, and remedy the harms to which they have contributed.

The US government must take urgent action to facilitate the enjoyment of human rights for all people along the Houston Ship Channel. This includes holding polluters to account, restricting further expansion of the petrochemical industry, and implementing a just transition away from fossil fuels by 2030 to prevent the most catastrophic impacts of climate change. In Texas, the transition to clean energy is an opportunity to address inequality by creating more than 1.1 million jobs in clean energy industries, with terms and conditions for workers that fulfil international human rights standards.

Legislation to prevent corporate human rights abuses and hold companies to account is being developed in the EU and other jurisdictions around the world. To be truly effective, such legislation needs to recognize that human rights and environmental and climate harms are interlinked and therefore companies must simultaneously examine and address these impacts as part of their due diligence.

KEY RECOMMENDATIONS

US AUTHORITIES

TO THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

- Take immediate action to fully implement and enforce all federal and state environmental laws and regulations and ensure the petrochemical industry and all related activities do not lead to human rights abuses and environmental and climate harms.
- Stop granting permits for new and expanded petrochemical operations. For permit renewals, consider the company's history of compliance and mitigation of environmental injustices.
- Develop and implement an effective and accessible alert system for chemical releases and emergency response that provides communities with real-time updates in all languages relevant to fence-line communities.

TO THE TEXAS LEGISLATURE

- Abolish loopholes within environmental regulations, such as the "affirmative defense" for unexpected emissions events.
- Pass legislation to ensure fines paid by polluting companies have tangible benefits for impacted communities.
- Pass legislation to immediately halt further expansion of fossil-fuel based petrochemical operations. Ensure a rapid phase-out of the most emissions-intensive facilities and develop and implement a human-rights consistent plan to phase out fossil fuels by 2030. This plan must support workers reliant on fossil fuel production to secure alternative livelihoods that provide for sustainable and decent work.

KEY RECOMMENDATIONS *CONTINUED*

TO THE EPA

- Conduct an urgent review of TCEQ's performance and enforcement of the petrochemical industry. Where TCEQ is found not to be fully implementing and enforcing all federal laws, take corrective action and consider limiting State environmental law enforcement authority.
- Require facilities that release environmental pollution to adhere to their permitted emissions limits. Shutdown facilities in repeated non-compliance.
- Require all petrochemical plants to conduct continuous fenceline air monitoring. Make the data publicly available in real-time and follow up with stringent enforcement as needed.

COMPANIES

TO ALL PETROCHEMICAL COMPANIES IN THE USA

- Ensure operations do not harm human rights, the environment and climate by proactively taking preventative measures.
- Conduct ongoing and transparent due diligence to identify, prevent, mitigate, and account for negative human rights, environmental and climate change impacts resulting from their operations or as a result of their business relationships with other actors. Due diligence should include assessments of the health impacts of their operations and should continue once products have left the facility and are in storage awaiting transit in the local area.

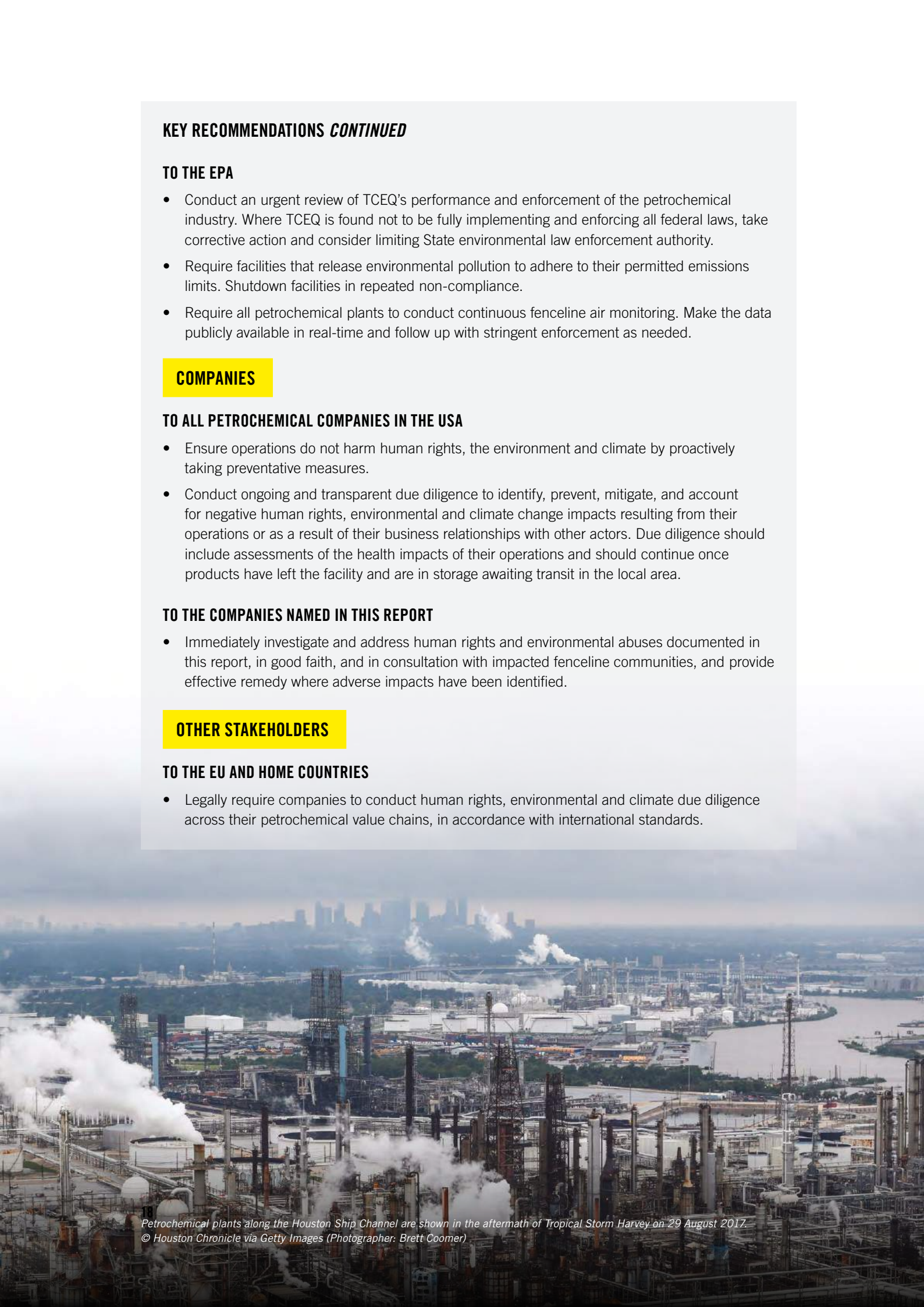
TO THE COMPANIES NAMED IN THIS REPORT

- Immediately investigate and address human rights and environmental abuses documented in this report, in good faith, and in consultation with impacted fenceline communities, and provide effective remedy where adverse impacts have been identified.

OTHER STAKEHOLDERS

TO THE EU AND HOME COUNTRIES

- Legally require companies to conduct human rights, environmental and climate due diligence across their petrochemical value chains, in accordance with international standards.



*Petrochemical plants along the Houston Ship Channel are shown in the aftermath of Tropical Storm Harvey on 29 August 2017.
© Houston Chronicle via Getty Images (Photographer: Brett Coomer)*

2. METHODOLOGY

This report examines the human, environmental and climate impacts of the largest petrochemical complex in the USA – the Houston Ship Channel, along the Texas Gulf Coast. The Houston Ship Channel is defined as the waterway that connects Houston, Texas, with the Gulf of Mexico, passing through the former Buffalo Bayou and Galveston Bay. In addition to broad conclusions on the impact of the petrochemical industry along the Houston Ship Channel, the report presents specific case studies that exemplify irresponsible business practices that contribute to human rights and environmental impacts, involving three major petrochemical-producing facilities: The ExxonMobil Baytown Complex; LyondellBasell's Channelview Complex; and Shell Deer Park Chemicals; as well as one petrochemical storage facility: Intercontinental Terminals Company LLC's Deer Park Terminal (ITC Deer Park). These facilities were identified as priorities by local civil society organizations and interviewees due to the scale and impacts of their activity. All four companies, owned by large multinational corporations or their subsidiaries, have repeatedly reported emissions events that exceed permitted air pollution limits over the last 20 years. High-profile disasters, such as fires and explosions, have occurred at three of the facilities – the ExxonMobil Baytown Complex, Shell Deer Park Chemicals and ITC Deer Park – in the past five years. These companies provide illustrative case studies, but it is important to note the Houston Ship Channel is home to hundreds of such facilities.

This report is based on research carried out by Amnesty International between January and December 2023. Amnesty International researchers travelled to the Houston area three times during the period of research: in January/February 2023, in May and in August. Information was obtained from a variety of sources, including: interviews and meetings with stakeholders; photographs and other materials provided by interviewees; observation of open-to-the-public meetings; publicly available information on the companies subject to this research; pollution, enforcement and compliance data held by state and federal agencies; and case law. The organization also carried out extensive desk research using information from other open sources, including relevant human rights law and standards, reports from civil society organizations, domestic and international news media, academic journals and UN reports. The organization also commissioned research on the supply chain for petrochemical products produced along the Houston Ship Channel. Finally, while present in the region, Amnesty researchers observed the petrochemical infrastructure and the environment more generally.

All four companies, owned by large multinational corporations or their subsidiaries, have repeatedly reported emissions events that exceed permitted air pollution limits over the last 20-years.

Amnesty International conducted interviews with 29 people who currently or used to live, work or attend school within a three-mile radius of a petrochemical facility along the Houston Ship Channel. A three-mile radius is consistent with environmental justice literature and studies and is used by the EPA in its environmental justice screening to assess key demographic and environmental indicators of communities surrounding a given facility.¹⁸ For the purpose of this report, communities that live within the three-mile radius of a petrochemical facility and who bear the greatest burdens of petrochemical pollution are referred to as fenceline communities.

¹⁸ EPA, "Power plants and neighboring communities", <https://www.epa.gov/power-sector/power-plants-and-neighboring-communities> (accessed on 17 July 2023).

Fenceline community members who spoke to Amnesty International about their experiences of the petrochemical industry were from neighbourhoods including Baytown, Channelview, Deer Park, Galena Park, Magnolia Park, Manchester, Pasadena and Smith Addition. Seventeen of the interviewees identified as women, nine as men, and three as non-binary or gender fluid. The age of the respondents ranged from 22 to 81. With regard to the interviewees' racial and ethnic backgrounds, thirteen were Latinx/Hispanic, nine were white (non-Latinx/Hispanic), six were Black or African American and one was Middle Eastern.¹⁹ The majority of the interviews were conducted in English, and one in Spanish.

All interviewees gave informed consent in advance of being interviewed. Amnesty did not provide incentives in exchange for interviews but in recognition of their time and as advised by local civil society organizations, Amnesty International offered interviewees light refreshments during the interview and to cover transportation and childcare costs as needed.

Amnesty International was unable to interview workers currently employed in the petrochemical industry but four of the interviewees had worked in the petrochemical industry and 11 had close relatives who work or have previously worked in the industry. Some of those interviewed requested anonymity due to personal connections to the petrochemical industry. For those who requested anonymity, Amnesty International has used pseudonyms and omitted all potentially identifying information from this report.²⁰

Amnesty International held a series of meetings and conducted 14 further interviews with USA-based subject matter experts, including lawyers, medical and public health professionals, environmental justice advocates, academics, and former pollution inspectors with experience investigating industrial air pollution along the Houston Ship Channel. The majority of the interviews were conducted in-person, the rest were carried out either by phone or video call.

Amnesty International observed the following open-to-the-public events for stakeholders while conducting research in the region: a community-industry partnership meeting in Jacinto City; a community air monitoring event organized by the non-profit advocacy organization Air Alliance Houston; a neighbourhood meeting organized by Super Neighborhood 65 – Harrisburg/Manchester/Smith Addition; and a public hearing for the renewal of an operating permit held by the petrochemical storage facility ITC Deer Park. Amnesty International researchers also conducted various site visits along the Houston Ship Channel, to observe the scale of the petrochemical industry and its supporting infrastructure, and the proximity of neighbourhoods to industry. On a number of occasions on all trips Amnesty International researchers detected lingering chemical odours, including in residential areas, and grey smoke coming from flare stacks. Researchers also reviewed photographs and video footage taken by community members of unusual flaring, plant fires, black smoke, and loud noise and rumbling. During Amnesty International's visit to the region in May, a large fire broke out at Shell Deer Park Chemicals, which lasted for three days.²¹

Amnesty International commissioned supply chain research from Profundo, a specialist supply chain research group, to identify transatlantic petrochemical product flows from the petrochemical producing facilities included in the report to Europe between January 2021 and June 2023. Europe is a major market for US petrochemical products.

19 Some interviews included a question for self-identification of the racial and ethnic background of participants. In some cases, participants did not self-identify as racialized but were externally defined by the researchers. Amnesty International recognizes that different people from within these communities may identify with and use different terms. Different terms from the ones described here may be used in the report, depending on the terms used by the particular source of information. For example, Black communities may also be referred to as African American, while Latinx communities may be described as Hispanic or Latino.

20 Pseudonyms are used in quotation marks, with, on first mention, clarification in brackets that the name has been changed.

21 TCEQ, "Shell fire, Deer Park", May 2023, <https://www.tceq.texas.gov/response/shell-pemex-deer-park>

In September 2023, Amnesty International wrote to ExxonMobil, LyondellBasell, Shell and ITC and asked questions regarding their operations and human rights and environmental due diligence practices. ExxonMobil, LyondellBasell and Shell responded, their responses can be found in Annex 1. At the time of publication, ITC did not respond. Amnesty International again wrote to all the companies in November 2023 to inform them of relevant allegations and findings contained in the report and to give them the opportunity to respond. At the time of publication, only LyondellBasell responded. In its response, it said: “[Y]our letter includes statements and implications about the operations of Equistar Chemicals, LP and Lyondell Chemical Company at Channelview that we do not consider to be accurate or fair.”²² The full response can be found in Annex 1.

In September 2023, Amnesty International wrote to the regulatory agencies TCEQ and EPA and asked questions on environmental procedures, compliance and enforcement. EPA responded and the response can be found in Annex 2. At the time of publication, TCEQ did not respond to the questions. In November 2023, Amnesty International again wrote to TCEQ and EPA, in addition to Port Houston, US Army Corps of Engineers and Harris County Pollution Control Services Department, to inform them of relevant allegations contained in the report and give them the opportunity to respond. At the time of publication, only Port Houston and US Army Corps of Engineers provided responses; the responses can be found in Annex 2. TCEQ said: “We have no comment at this time”.²³

2.1 ACKNOWLEDGEMENTS

Amnesty International would like to offer special thanks to those community members who spoke to the organization as part of this research and generously shared their experiences and expertise. This report would not have been possible without them.

Amnesty International would also like to acknowledge and value the important work of US-based civil society organizations that have advocated for redress for many of the harms documented in this report for several years and whose work this report builds on. Amnesty International would like to thank all organizations who provided us with their expert inputs and guidance and liaised with fenceline communities to connect Amnesty International to a range of people with lived experience of petrochemical pollution. These organizations, who gave consent to be named in the report, include: ACTS, Air Alliance Houston, Another Gulf is Possible, Bayou City Waterkeeper, Bullard Center for Environmental and Climate Justice, Caring for Pasadena Communities, Channelview Health & Improvement Coalition (C.H.I.C.), Coalition of Community Organizations, Coalition for Environment, Equity, and Resilience (CEER), East Harris County Empowerment Council, Environmental Community Advocates of Galena Park, Environmental Defense Fund, Environmental Integrity Project, Environment Texas, Fenceline Watch, Lonestar Legal Aid, One Breath Partnership, Our Afrikan Family, and Society of Native Nations.

²² Letter from LyondellBasell to Amnesty International, 1 December 2023. The full letter included in Annex 1.

²³ Email from TCEQ to Amnesty International, 1 December 2023.

3. BACKGROUND

3.1 PETROCHEMICALS AND PLASTIC PRODUCTION

Petrochemicals are chemical products processed from crude oil and natural gas. They include ethylene, propylene, butadiene, benzene, xylene, toluene, and methanol. Petrochemicals are used to manufacture plastics and fertilizers, in addition to an array of other products, including pesticides, tyres, paints, clothing, and medical equipment.²⁴ Plastics are the largest output of the petrochemical industry; over 99% of plastics are derived from fossil fuels.²⁵

Advances in horizontal drilling and hydraulic fracturing, also known as ‘fracking’, have enabled the USA to access oil and natural gas from previously unexploited shale deposits, leading to a resurgence of the petrochemical industry in recent years.²⁶ After China, the USA has the largest petrochemical production capacity in the world, and accounts for 40% of the world’s ethane-based petrochemical production capacity.²⁷

Petrochemicals are produced from the processing of fossil fuels by facilities including refineries, chemical plants, and steam crackers.²⁸ Feedstocks, such as ethane and propane, are separated from the other components of natural gas and crude oil during refining. These feedstocks are processed into petrochemicals by steam cracker facilities that use high temperatures and pressure to crack apart the molecules. Ethylene is the most produced petrochemical in the USA, followed by propylene; the biggest use for both is to manufacture plastics.²⁹ These petrochemicals and their by-products are separated and then sent to processing plants such as polymerization facilities where they are transformed into polyethylene and polypropylene in the form of small plastic pellets. Known as “nurdles”, these pellets are eventually melted down and made into plastic goods such as food packaging, containers, straws, bottles and bags.

STAGES OF PETROCHEMICAL PRODUCTION

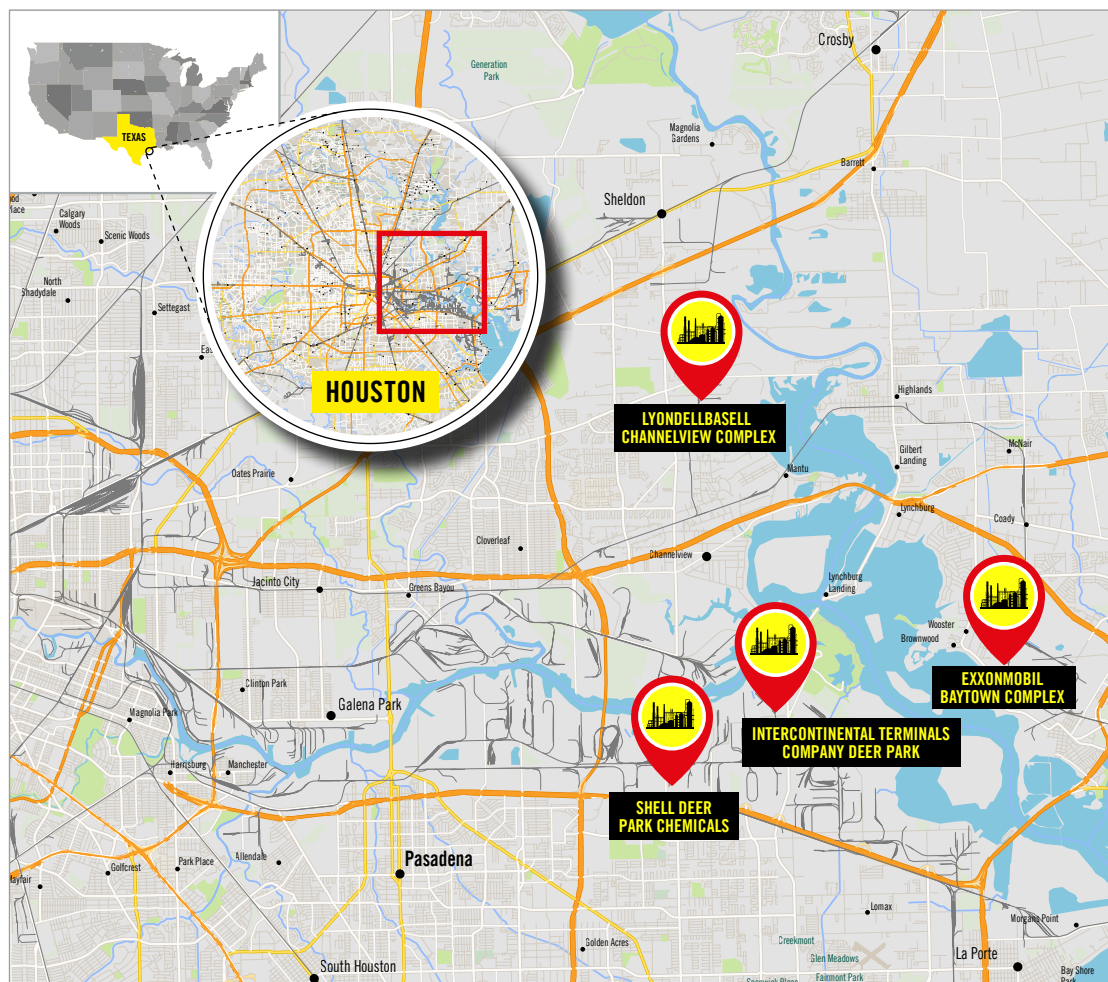


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- 24 Beyond Petrochemicals, “Get the facts”, <https://www.beyondpetrochemicals.org/get-the-facts/> (accessed on 8 August 2023).
- 25 CIEL, “Fossil fuels and plastic”, <https://www.ciel.org/issue/fossil-fuels-plastic/> (accessed on 22 June 2023).
- 26 Shale formations contain significant accumulations of natural gas and/or oil, found in fine-grained sedimentary rock. See: EIA, “Natural gas explained”, <https://www.eia.gov/energyexplained/natural-gas/where-our-natural-gas-comes-from.php> (accessed on 16 August 2023). In 2011, the USA became the world’s largest producer of natural gas and in 2018 became the world’s largest producer of oil. See <https://www.eia.gov/todayinenergy/>
- 27 F. Bauer and others, “Petrochemicals and climate change: Powerful fossil fuel lock-ins and interventions for transformative change”, May 2023, IMES/EESS report, Vol. 130, Lund University, https://portal.research.lu.se/en/publications/petrochemicals-and-climate-change-powerful-fossil-fuel-lock-ins-a_p.12; IEA, *The Future of Petrochemicals*, October 2018, <https://www.iea.org/reports/the-future-of-petrochemicals>
- 28 FracTracker Alliance, “Petrochemicals guide”, <https://www.fractracker.org/petrochemicals/guide/> (accessed on 22 June 2023).
- 29 FracTracker Alliance, “Petrochemicals guide”, <https://www.fractracker.org/petrochemicals/guide/> (accessed on 22 June 2023).

3.2 THE GULF COAST PETROCHEMICAL INDUSTRY

US petrochemical and refining industries are heavily concentrated in states along the Gulf Coast of Mexico – particularly in Texas and Louisiana – in part due to the presence of Gulf Coast oil and access to international markets.³⁰ The Houston Ship Channel in Harris County, Texas, is a 52-mile dredged waterway that connects Houston with the Gulf of Mexico, passing through the former Buffalo Bayou to the San Jacinto River and then into Galveston Bay.³¹ One of the busiest waterways in the world, the Houston Ship Channel is home to the largest petrochemical complex in the USA, surrounded by over 600 petrochemical facilities, which represent approximately 44% of the nation’s petrochemical production capacity.³² Port Houston is the USA’s biggest exporter of plastic resins, with a 59% share of US resins exports and 73% share of polyethylene exports in 2022. An expansion of the Houston Ship Channel is underway to meet growing export demand, increased vessel sizes and vessel traffic, and is expected to be completed in 2025.³³

MAP OF HOUSTON



30 RMI, *Emissions Out the Gate: State of the Refining and Petrochemical Industries*, 2022, <https://rmi.org/insight/emissions-out-the-gate>

31 Greater Houston Partnership, “Energy”, <https://www.houston.org/why-houston/industries/energy> (accessed on 1 August 2023).

32 Houston Ship Channel Expansion Project 11, “Project overview”, <https://expandthehoust.wpengine.com/project-overview/> (accessed on 21 June 2023); Greater Houston Partnership, “Data, insight & analysis”, 26 April 2021, <https://www.houston.org/houston-data/chemical-industry-overview>

33 Houston Ship Channel Expansion Project 11 (previously cited).



Petrochemical plants along the Houston Ship Channel. © Getty Images (Photographer: Ed Lallo)

This report highlights case studies involving four major petrochemical facilities along the Houston Ship Channel, which are all owned by large multinational corporations or their subsidiaries. They are:

ExxonMobil Baytown Complex, located in Baytown, Texas, is owned by ExxonMobil Corporation (ExxonMobil), a US multinational oil and gas company. According to its website, ExxonMobil's Baytown Complex is one of the largest integrated refining and petrochemical complexes in the world.³⁴ Spanning approximately 3,400 acres, the complex is made up of the Baytown Refinery, the Baytown Olefins Plant and the Baytown Chemical Plant. Products produced at the complex include ethylene, propylene, benzene, butadiene, butylene, and polypropylene. The Baytown Olefins Plant is one of the largest ethylene plants in the world, with an ethane cracker that has a capacity of 1.5 million metric tons per year.³⁵

LyondellBasell Channelview Complex, located in Channelview, Texas, is owned and operated by subsidiaries of LyondellBasell Industries NV (LyondellBasell), a multinational company incorporated in the Netherlands. According to its website, the LyondellBasell Channelview Complex is one of the largest petrochemical facilities on the Gulf Coast, covering an area of almost 4,000 acres.³⁶ The complex is split into the northside facility, which produces ethylene, butadiene and benzene, and southside facility, which produces propylene oxide, styrene monomer and other derivatives. Equistar Chemicals LP, LLC owns and operates the units at the northside facility,³⁷ while Lyondell Chemical Company owns and operates the southside facility.

34 ExxonMobil, "Baytown operations", <https://corporate.exxonmobil.com/locations/united-states/baytown-operations> (accessed on 27 June 2023).

35 ExxonMobil, "Baytown operations" (previously cited).

36 LyondellBasell, "Channelview complex", <https://www.lyondellbasell.com/en/channelview-complex/> (accessed on 27 June 2023).

37 *United States of America v. Equistar Chemicals, LP; LyondellBasell Acetyls, LLC; and Lyondell Chemical Company*, US District Court, Southern District of Texas Houston Division, 2021, <https://www.justice.gov/opa/press-release/file/1442076/download>, p. 1.

Shell Deer Park Chemicals, located in Deer Park, Texas, is owned and operated by Shell Chemical LP, a subsidiary of Shell USA, Inc., which in turn is a wholly owned subsidiary of UK-based Shell Plc. Ethylene accounts for the largest proportion of its total annual capacity, followed by benzene and phenol.³⁸ Shell Deer Park Chemicals sits on a 1,500-acre site adjacent to an oil refinery – Deer Park Refining Limited Partnership. Previously a joint venture, Shell sold its 50% interest in the oil refinery to the Mexican oil company Pemex in 2022 and entered into “product offtake and crude supply agreements with Pemex”.³⁹

Intercontinental Terminals Company's Deer Park Terminal (ITC Deer Park), located in Deer Park, Texas, is a 265-acre bulk chemical storage facility owned by US-based Intercontinental Terminals Company LLC (ITC). ITC is a subsidiary of Mitsui & Co. (U.S.A.), Inc., which is part of the Japanese conglomerate Mitsui & Co. Ltd.⁴⁰ ITC is a terminal services company, which provides logistical services for customers in the global petrochemical and petroleum market, including storage, loading and unloading, and connectivity to local and interstate pipeline networks.⁴¹ ITC Deer Park has 227 storage tanks, rail and truck access, five tanker berths, ten barge docks, and pipeline connections.⁴² The facility handles liquid chemicals, petroleum and gases, including propylene and butadiene.

3.3 PETROCHEMICAL POLLUTION

The petrochemical industry is a major source of pollution along the Houston Ship Channel. This pollution stems from various stages of refining and production, as well as flaring, leaks, storage and handling.⁴³ Pollutants include VOCs, such as benzene, toluene, 1-3 butadiene, ethylene and styrene; greenhouse gases, such as methane, carbon dioxide and nitrous oxide; and particulate matter (PM). The industry also contributes to the production of ozone, a secondary pollutant formed from the reaction between VOCs, oxides of nitrogen and sunlight. Ground-level ozone combined with the presence of PM creates smog, characterized by haze and reduced visibility.⁴⁴ Another secondary pollutant is formaldehyde, formed through chemical reactions involving VOCs, including those produced and emitted by the petrochemical industry.⁴⁵ Secondary formaldehyde (formed from other chemicals) makes up almost 95% of all the ambient formaldehyde present in Houston Ship Channel neighbourhoods.⁴⁶

The WHO has identified polluted air as the single largest environmental risk to human health.⁴⁷ Pollutants produced by the petrochemical industry increase the risk of a range of adverse health impacts, from respiratory and cardiovascular disease to cancers (see Section 6.3 of this report for a full breakdown). VOCs emitted by the industry, such as benzene and 1,3-butadiene, are human carcinogens and have been linked to increased rates of cancer in the region, while breathing in PM_{2.5} (fine PM of 2.5 micrometres or less in diameter) has been linked to respiratory issues, lung cancer, adverse pregnancy outcomes and cardiovascular problems.⁴⁸

38 Offshore Technology, “Petrochemicals complex profile: Shell Chemicals Deer Park Complex, US”, 22 April 2023, <https://www.offshore-technology.com/marketdata/shell-chemicals-deer-park-complex-united-states/>

39 Shell Global, “Shell completes sale of interest in Deer Park refinery to partner Pemex”, 20 January 2022, <https://www.shell.com/media/news-and-media-releases/2022/shell-completes-sale-of-interest-in-deer-park-refinery-to-partner-pemex.html>

40 ITC, “About us”, <https://www.item.com/about-itc/> (accessed on 27 June 2023).

41 ITC, “Welcome to Intercontinental Terminals Company”, <https://www.item.com/> (accessed on 27 June 2023).

42 ITC, “Deer Park”, <https://www.item.com/locations/deer-park/> (accessed on 27 June 2023).

43 A. Ragothaman and W. A. Anderson, “Air quality impacts of petroleum refining and petrochemical industries”, 2017, *Environments*, Volume 4, Issue 3, p. 66, available at <https://doi.org/10.3390/environments4030066>

44 A. Ragothaman and W. A. Anderson, “Air quality impacts of petroleum refining and petrochemical industries” (previously cited).

45 One Breath Partnership, *Formaldehyde Air Pollution in Houston*, 1 July 2021, <https://environmentalintegrity.org/wp-content/uploads/2021/07/Houston-Formaldehyde-Report-7.1.21.pdf>, p. 16.

46 One Breath Partnership, *Formaldehyde Air Pollution in Houston* (previously cited), p. 4.

47 World Health Organization (WHO), “WHO global air quality guidelines”, <https://apps.who.int/iris/bitstream/handle/10665/345334/9789240034433-eng.pdf>, p. 1.

48 Kristina W. Whitworth, Elaine Symanski and Ann. L Coker, “Childhood lymphohematopoietic cancer incidence and hazardous air pollutants in Southeast Texas, 1995-2004”, August 2008, *Environmental Health Perspectives*, Volume 116, Issue 11, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2592281/>; Centers for Disease Control and Prevention (CDC), “Particle pollution”, https://www.cdc.gov/air/particulate_matter.html (accessed on 21 July 2023).

A petrochemical facility will have a series of permits that allow it to carry out various operations. All facilities that release pollution into the air above certain levels are required to obtain air pollution and operating permits.⁴⁹ Further permits are required when these businesses build new units or make significant changes to existing facilities that cause pollution. These permits are legally enforceable and specify how facilities must operate pollution control equipment, the pollutant limits they must adhere to, and how to monitor and report their emissions. Facilities with air permits are required to submit self-monitored emissions inventories, including data from unauthorized emissions events, to TCEQ.⁵⁰



Flames from a flare stack. Flaring is used by petrochemical plants and refineries to burn off excess gas. © 2019 Getty Images/ Bloomberg Creative (Photographer: Dimas Ardian)

FLARING

Flaring – the burning of excess gases – is used by refineries and petrochemical facilities to dispose of gases containing combustible components such as VOCs, natural gas (methane), carbon monoxide and hydrogen. Excess gas is typically burned off either at the top of a large flare stack or in a pit in the ground. During flaring, these gases are combined with steam and/or air and burned off in the flare system, which produces water vapour and carbon dioxide. White steam is often visible around the flare stacks.

Flaring results in the release of substantial volumes of greenhouse gases, including methane, black soot, and nitrous oxide.⁵¹ Improper operation and monitoring of industrial flares by companies can lead to excess emissions of VOCs and other hazardous air pollutants, depending on the chemical composition of gas being burned and the efficiency and temperature of the flare. Black smoke – a sign of improper flaring and a common sight for fenceline communities along the Ship Channel⁵² – can form when the flame does not have sufficient oxygen to completely burn the waste gas.

49 EPA, “Air emissions monitoring for permits”, <https://www.epa.gov/air-emissions-monitoring-knowledge-base/air-emissions-monitoring-permits>. (accessed on 13 July 2023).

50 TCEQ, 30 Texas Administrative Code, Chapter 101, Emissions Event Reporting and Recordkeeping Requirements, https://www.epa.gov/sites/default/files/2017-07/documents/ch_101_sect_101.201.pdf

51 International Energy Agency (IEA), “Gas flaring”, <https://www.iea.org/energy-system/fossil-fuels/gas-flaring> (accessed on 21 July 2023).

52 Amnesty International interviews with community members; Amnesty International researcher’s observations during research trips to the Houston Ship Channel.



Announced in April 2023, the EPA issued a proposal to strengthen and update Clean Air Act regulations that would require petrochemical plants to monitor the air around their facilities and reduce toxic air pollutants, such as ethylene oxide, benzene, 1,3-butadiene and vinyl chloride. The EPA states the proposal is expected to reduce the number of people with elevated air toxics-related cancer risk by 96% in communities surrounding chemical plants and is anticipated to come into effect this year.⁵³

The petrochemical industry also releases millions of pounds of pollution into US waterways every year.⁵⁴ While the Clean Water Act requires the EPA to limit industrial discharges of harmful pollutants, outdated and weak effluent guidelines for refineries and petrochemical plants allow unlimited discharges of many harmful pollutants.⁵⁵ In April 2023, environmental groups filed a lawsuit against the EPA for failing to set limits on harmful chemicals like cyanide, benzene, mercury and chlorides in wastewater discharged by refineries, petrochemical facilities and plastics plants, including those operating along the Houston Ship Channel.⁵⁶

53 EPA, “Biden-Harris Administration proposes to strengthen standards for chemical and polymers plants, dramatically reduce cancer risks from air toxics”, 6 April 2023, <https://www.epa.gov/newsreleases/biden-harris-administration-proposes-strengthen-standards-chemical-and-polymers-plants>

54 Environmental Integrity Project, “Petrochemical industry water pollution”, <https://environmentalintegrity.org/industrial-water-pollution-standards/> (accessed on 15 July 2023).

55 Environmental Integrity Project, *Oil’s Unchecked Outfalls*, 26 January 2023, <https://environmentalintegrity.org/wp-content/uploads/2023/01/Oils-Unchecked-Outfalls-03.06.2023.pdf>, p. 4; Bayou City Waterkeeper, “We’re suing over billions of gallons of industrial wastewater”, 11 April 2023, <https://bayoucitywaterkeeper.org/were-suing-over-billions-of-gallons-of-industrial-wastewater/>

56 Bayou City Waterkeeper, “We’re suing over billions of gallons of industrial wastewater”, 11 April 2023, <https://bayoucitywaterkeeper.org/were-suing-over-billions-of-gallons-of-industrial-wastewater/>

3.4 ENVIRONMENTAL RACISM

“[In the USA] Black, Latinx and Indigenous communities are disproportionately more likely to live in communities near contamination hotspots, owing to the legacy of economic marginalization, segregation, slavery and colonialism.”⁵⁷

Former special rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance, E. Tendayi Achiume

Environmental racism means that racialized groups are disproportionately affected by pollution, environmental degradation and climate change. Amnesty International defines environmental racism as any environmental policy, practice, law or regulation that differentially affects or disadvantages (whether intentionally or unintentionally) individuals, groups or communities based on race, colour, descent and national and ethnic origin.⁵⁸ The UN Special Rapporteur on contemporary forms of racism has noted the importance of examining historical grounds of discrimination to adequately understand and address contemporary racism.⁵⁹ As such, the USA’s long history of systemic racism, including racially explicit laws and discriminatory housing and land use policies that intentionally segregated communities according to race are a critical backdrop to this report.⁶⁰

In the 1930s, federal housing agencies directed widespread neighbourhood appraisals to determine investment risk, taking into account residents’ race.⁶¹ This practice, referred to as “redlining”, contributed to segregation, disinvestment, and racial inequities in opportunities for homeownership and wealth accumulation, contributing to economic inequality and disadvantage that persists today for racialized groups in the USA, particularly Black people. Redlining also informed later local government land use decisions that placed polluting facilities in and near to neighbourhoods disproportionately made up of Black and other racialized groups.⁶² A 2022 study found a strong correlation between 2010 pollution levels and historically redlined neighbourhoods in the USA.⁶³ It also found racial and ethnic disparities in air pollution exposure even within redlined areas, with white populations experiencing on average lower levels of pollution than Black, Asian and Hispanic populations, indicating that redlining was only one of the many racially discriminatory policies that shaped the likelihood that communities were exposed to harmful air pollution.

57 UN Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia and Related Intolerance, E. Tendayi Achiume, *Ecological crisis, climate justice and racial justice*, 25 October 2022, UN Doc. A/77/549, para 52

58 Amnesty International draws on the following definitions: (1) According to Robert Bullard: “Environmental racism refers to any policy, practice, or directive that differentially affects or disadvantages (whether intended or unintended) individuals, groups, or communities based on race or color”: R. D. Bullard, “The threat of environmental racism”, 1993, *Natural Resources & Environment*, Volume 7, Issue 3, available at <https://www.jstor.org/stable/40923229>, p. 23; (2) On a global scale, the former Special Rapporteur on racism notes that: “discrimination on the grounds of race, colour, descent and national and ethnic origin remains a critical determinant of climate and environmental harms experienced by individuals and communities”: Special Rapporteur on racism, Report: *Ecological Crisis, Climate Justice and Racial Justice*, 25 October 2022, UN Doc. A/77/549, para. 50.

59 Special Rapporteur on racism, Report, 22 October 2021, UN Doc. A/76/434, para. 3.

60 R. Rothstein, *The Color of Law: A Forgotten History of How our Government Segregated America*, 2017, pp. viii-xvii.

61 C. B. Swope, D. Hernández and L. J. Cushing, “The relationship of historical redlining with present-day neighborhood environmental and health outcomes: A scoping review and conceptual model”, 2022, *Journal of Urban Health*, Volume 99, available at <https://link.springer.com/article/10.1007/s11524-022-00665-z>

62 R. Rothstein, *The Color of Law* (previously cited).

63 H. M. Lane, R. Morello-Frosch, J. D. Marshall and J. S. Apte, “Historical redlining is associated with present-day air pollution disparities in U.S. cities”, 2022, *Environmental Science & Technology Letters*, Volume 9, Issue 4, available at <https://pubs.acs.org/doi/10.1021/acs.estlett.1c01012>, pp. 345-350.

Houston is one of the most diverse cities in the USA, but also one of the most racially segregated.⁶⁴ A lack of zoning regulations in the city and surrounding areas means industrial facilities are sited alongside residential areas;⁶⁵ these areas are often disproportionately comprised of racialized communities. From the 1920s to late 1970s, 11 of the 13 (84.6%) city-owned landfills and incinerators were sited in majority Black neighbourhoods, while Black people comprised only 25% of Houston's population at the time.⁶⁶ Amnesty International examined publicly available information and census data regarding fenceline communities impacted by petrochemical pollution along the Houston Ship Channel and found that these communities are disproportionately racialized people.⁶⁷ A study examining "vulnerability and emissions in the Ship Channel area" found communities along the Ship Channel have higher rates of people of colour, poverty, and persons with limited English proficiency, and in some areas face far greater pollution burdens as compared to the Houston area as a whole.⁶⁸ In contrast, affluent, predominantly white residents live in west Houston, far from petrochemical facilities.⁶⁹ Analysis by researchers at Rice University finds that "concentrated disadvantage and immigrant concentration have both increased considerably along the [Ship Channel] since 1970", while at the same time "per capita income and median housing values have remained relatively flat, despite rising affluence in the metropolitan area as a whole."⁷⁰ The researchers conclude: "These trends and patterns indicate increasing marginalization and social vulnerability of entire neighborhoods subject to the risk of chemical spills, with concentrated disadvantage now being a defining feature of many high-risk areas."

Robert Bullard, a Houston-based academic and founding director of Bullard Center for Environmental and Climate Justice, told Amnesty International:

"There's no accident that the petrochemical corridor in Houston is located on the east side... [which] has a higher concentration of people of colour. The neighbourhoods that line the Ship Channel... are disproportionately people of colour. If you look at the west side or the areas that have [a] higher percentage of white people, it's greener, it's more affluent, it has better access to healthcare."⁷¹

64 The Urban Institute, "Measuring inclusion in America's cities", 15 September 2020, available at https://apps.urban.org/features/inclusion/index.html?city=houston_TX

65 City of Houston, "Official City of Houston zoning letter", 1 January 2023, https://www.houstontx.gov/planning/DevelopRegs/docs_pdfs/2023_No_Zoning_Letter_and_Boundary_Map.pdf

66 R. D. Bullard, "Environmental justice and the politics of garbage: The mountains of Houston", 2014, Cite 93 Environmental Issues, available at <https://drrobertbullard.com/wp-content/uploads/2014/07/Final-2014-Bullard-Cite-Article.pdf>

67 Fenceline communities analyzed included: Baytown, Channelview, Clinton Park, Deer Park, Galena Park, Harrisburg/Manchester/Smith Addition, La Porte, Meadowbrook/Allendale and Pasadena City. Seven out of the nine communities had majority non-white populations (six predominantly "Hispanic or Latino", one predominantly "Black or African American") with a higher proportion of non-white people compared to the City of Houston, based on 2020 US census data. Analysis of EPA EJScreen data shows communities in east Houston and along the Houston Ship Channel have a greater proportion of racialized people compared to west Houston, see: EPA EJScreen, "EPA's Environmental Justice Screening and Mapping Tool", <https://ejscreen.epa.gov/mapper/> (accessed on 29 August 2023).

68 Sustainable Research Systems, *Evaluation of Vulnerability and Stationary Source Pollution in Houston*, 2009, <https://www.nrdc.org/sites/default/files/houston-stationary-source-pollution-202009.pdf>; EPA EJScreen, "EPA's Environmental Justice Screening and Mapping Tool", <https://ejscreen.epa.gov/mapper/> (accessed on 20 July 2023).

69 Union of Concerned Scientists and Texas Environmental Justice Advocacy Services, *Double Jeopardy in Houston: Acute and Chronic Chemical Exposures Pose Disproportionate Risks for Marginalized Communities*, 2016, available at <https://www.ucsusa.org/sites/default/files/attach/2016/10/ucs-double-jeopardy-in-houston-full-report-2016.pdf>, p. 7; Air Alliance Houston, "Race, redlining and toxic facilities", <https://www.arcgis.com/home/webmap/viewer.html?webmap=1c4839d2ae894f7b8a0bcc0895aea53b&extent=-96.2575,29.2665,-94.2291,30.2524> (accessed on 20 July 2023); EPA EJScreen, "EPA's Environmental Justice Screening and Mapping Tool", <https://ejscreen.epa.gov/mapper/> (accessed on 20 July 2023).

70 J. R. Elliott and others, "Evolution of social vulnerability and risks of chemical spills during storm surge along the Houston Ship Channel", June 2017, *Natural Hazards Review*, Volume 18, Issue 4, available at https://www.researchgate.net/publication/318116697_Evolution_of_Social_Vulnerability_and_Risks_of_Chemical_Spills_during_Storm_Surge_along_the_Houston_Ship_Channel

71 Interview by video call with Robert Bullard, Founding Director of Bullard Center for Environmental & Climate Justice and Professor of Urban Planning and Environmental Policy at Texas Southern University, 24 July 2023.

ENVIRONMENTAL RACISM IN LOUISIANA’S “CANCER ALLEY”

“Cancer Alley” is an 85-mile stretch of petrochemical plants along the Mississippi River, between Baton Rouge and New Orleans. Approximately 400km east of the Ship Channel, the petrochemical corridor has a predominantly Black and African American population and is a region with some of the highest rates of multiple forms of cancers in the USA.⁷² A study by Tulane Environmental Law Clinic found exposure to toxic air pollution is linked to higher cancer rates among Black and African American communities living in poverty in Louisiana,⁷³ while the same authors later found industrial emissions are seven to 21 times higher in communities of colour compared to white communities.⁷⁴ The latter study found that chemical manufacturing is the largest contributor to this disparity and blamed permitting practices by state regulators for the discrepancy.

A group of UN experts denounced the situation in Cancer Alley as “environmental racism” which poses “serious and disproportionate threats” to several human rights of the largely African American residents, including the right to equality and non-discrimination, the right to life, the right to health, right to an adequate standard of living and cultural rights.⁷⁵ In a letter to the Louisiana State Department of Environmental Quality and Department of Health, the EPA stated it found “significant evidence that the Departments’ actions or inactions have resulted and continue to result in disparate adverse impacts on Black residents”.⁷⁶ The EPA ended its investigation into the two agencies after Louisiana filed a federal lawsuit claiming it had overstepped its authority.⁷⁷ In the meantime, communities continue to fight back against environmental racism and the industry’s expansion in the area.⁷⁸

Remarking on the similar ways that environmental racism explains the distribution of exposure and risk linked to petrochemical hubs across the USA, Robert Bullard told Amnesty International:

“The pattern is pretty much the same... the industry has benefitted one segment of our society disproportionately and the negative impacts have disproportionately been borne by another group that live on the fenceline with these industries. They’re getting more of the harm, and oftentimes they don’t get the jobs, they get pollution, they get sick...”⁷⁹

72 Special Rapporteur on racism, *Ecological Crisis, Climate Justice and Racial Justice* (previously cited), para. 22.

73 K. A. Terrell & G. S. Julien, “Air pollution is linked to higher cancer rates among black or impoverished communities in Louisiana”, 2022, *Environmental Research Letters*, Volume 17, available at <https://iopscience.iop.org/article/10.1088/1748-9326/ac4360>

74 K. A. Terrell and G. S. Julien, “Discriminatory outcomes of industrial air permitting in Louisiana, United States”, 2023, *Environmental Challenges*, Volume 10, available at <https://www.sciencedirect.com/science/article/pii/S2667010022002281>

75 OHCHR, “USA: Environmental racism in “Cancer Alley” must end – experts”, 2 March 2021, available at <https://www.ohchr.org/en/press-releases/2021/03/usa-environmental-racism-cancer-alley-must-end-experts>

76 EPA, “Letter of concern”, 12 October 2022, available at <https://www.epa.gov/system/files/documents/2022-10/2022%2010%2012%20Final%20Letter%20LDEQ%20LDH%2001R-22-R6,%2002R-22-R6,%2004R-22-R6.pdf>

77 Washington Post, “EPA closes civil rights investigation into Louisiana pollution”, 27 June 2023, <https://www.washingtonpost.com/climate-environment/2023/06/27/epa-investigation-louisiana-environmental-justice/>

78 For example, in March 2023, a group of community-led organizations filed a lawsuit against St. James Parish, accusing local government of decades of environmental racism through repeated and discriminatory siting of industrial facilities in predominantly Black communities in the Parish. See: Center for Constitutional Rights, “Plaintiffs sue parish council for pattern of racist land use practices that centralize petrochemical plants in Black neighborhoods, declare that new suit is only just the beginning”, 21 March 2023, <https://ccrjustice.org/home/press-center/press-releases/landmark-case-st-james-parish-residents-sue-parish-council-protect>

79 Interview by video call with Robert Bullard, Founding Director of Bullard Center for Environmental & Climate Justice and Professor of Urban Planning and Environmental Policy at Texas Southern University, 24 July 2023.

4. LEGAL FRAMEWORK

4.1 US GOVERNMENT'S OBLIGATION TO PROTECT AGAINST CORPORATE ABUSE

The right to a clean, healthy, and sustainable environment is a universal right recognized by the UN General Assembly.⁸⁰ UN recognition of this right makes clear that states have an obligation to protect, respect and fulfil this right. The USA has enacted environmental laws at the state and federal levels which aim to protect a clean and healthy environment for communities. These laws are intended to minimize pollution and protect the environment, such as the National Environmental Protection Act; the Comprehensive Environmental Response, Compensation, and Liability Act; the Emergency Planning and Community Right to Know Act; and the Clean Air Act and Clean Water Act. Beyond congressionally passed laws, a number of presidential executive orders direct federal agencies, such as the EPA and Department of Health and Human Services, to investigate and mitigate environmental health risks towards communities and prioritize environmental justice.⁸¹ Human rights protections are guaranteed by domestic law, recognized by the USA Constitution and other federal laws such as The Civil Rights Act, which prohibits discrimination based on race, colour, religion, sex, or national origin. More specifically, Title VI of the Civil Rights Act prohibits discrimination based on race, colour or national origin related to any program or activity receiving federal financial assistance, including assistance from the EPA.

ENVIRONMENTAL PROTECTION AGENCY

The EPA is the overarching federal body that has the authority to oversee state environmental authorities and actions along with enforcing states and companies to comply with laws and policies, including state permit issuing agencies.⁸² Under Title 40, Code of Federal Regulations (Part 70), states can administer Clean Air Act operating permits to facilities.⁸³ In the circumstance a state has demonstrated a failure to adequately administer and enforce operating permits, the EPA can revoke the state's permit issuing authority and implement Part 71, giving the EPA authority to issue permits within the state. According to the EPA, one of its "top priorities is to protect communities disproportionately affected by pollution" through its environmental justice work.⁸⁴

80 UN General Assembly, Resolution on the human right to a clean, healthy and sustainable environment, 26 July 2022, UN Doc. A/76/L.75.

81 Such as the Protection of Children and Environmental Health Risks (Executive Order 13045), Revitalizing Our Nation's Commitment to Environmental Justice for All (Executive Order 14096); Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (Executive Order 12898); Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (Executive Order 13990); and Tackling the Climate Crisis at Home and Abroad (Executive Order 14008).

82 EPA, "Our mission and what we do", <https://www.epa.gov/aboutepa/our-mission-and-what-we-do> (accessed on 22 August 2023).

83 Code of Federal Regulations, Title 40, <https://www.ecfr.gov/current/title-40>

84 EPA, "Basic information on enforcement", <https://www.epa.gov/enforcement/basic-information-enforcement> (accessed on 22 August 2023).

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

The TCEQ is the environmental agency of Texas. As a state environmental regulatory agency, the TCEQ is delegated by the state of Texas to administer and enforce all federal and state environmental laws and regulations within its jurisdiction, reviewing and issuing permits and responding to inquiries from the public. According to the TCEQ website, it “strives to protect our state’s public health and natural resources consistent with sustainable economic development. Our goal is clean air, clean water, and the safe management of waste.”⁸⁵

The UN resolution on the human right to a clean, healthy, and sustainable environment damage – such as the pollution of air, land and water – interferes with the enjoyment of this right and “has negative implications, both direct and indirect, for the effective enjoyment of all human rights.”⁸⁶ The USA has obligations to protect human rights under international human rights law as a state party to the International Covenant on the International Covenant on Civil and Political Rights (ICCPR) and the International Convention on the Elimination of all Forms of Racial Discrimination (CERD). It has also signed but not ratified other treaties which are of relevance, such as the International Covenant on Economic, Social and Cultural Rights (ICESCR), the Convention on the Elimination on all Forms of Discrimination Against Women (CEDAW) and the Convention on the Rights of the Child (CRC). The USA is one of the few countries in the world that has not ratified these key treaties which guarantee aspects of the right to health, in addition to the Convention on the Rights of Persons with Disabilities (CRPD) – which the USA has also not ratified. Under international law, while not legally bound, as in the case of treaties it has ratified, the USA must refrain from acts that would defeat the object and purpose of the treaties it has signed.⁸⁷

Under international human rights law, all states have a duty to protect against human rights abuses by all actors, including companies.⁸⁸ States are required to take appropriate measures to prevent human rights abuses by private actors and to respond to these abuses when they occur by investigating the facts, holding the perpetrators to account and ensuring effective remedy for the harm caused.⁸⁹ The pivotal principle of this duty is that states must protect individuals and communities from the harmful activities of corporate actors through “effective policies, legislation, regulation and adjudication”.⁹⁰

The UN Working Group on the issue of human rights and transnational corporations and other business enterprises (UN Working Group on Business and Human Rights) has concluded that under the UN Guiding Principles on Business and Human Rights (UN Guiding Principles), states’ obligations to protect human rights impacts arising from business activities “include... the duty to protect against foreseeable impacts related to climate change.”⁹¹ The USA is also a signatory to the Paris Agreement, which commits states to: “Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above

85 TCEQ, “Mission statement and agency philosophy”, <https://www.tceq.texas.gov/agency/mission.html> (accessed on 13 July 2023).

86 UN General Assembly, Resolution on the human right to a clean, healthy and sustainable environment, 26 July 2022, UN Doc. A/76/L.75.

87 Vienna Declaration and Programme of Action, 25 June 1993.

88 OHCHR, *Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework* (UN Guiding Principles), 2011, UN Doc. HR/PUB/11/04, https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf, Principle 1.

89 UN Guiding Principles, Principle 1.

90 See generally, Amnesty International, *Injustice incorporated: Corporate abuses and the human right to remedy* (Index: POL/30/001/2014), 7 March 2014, <https://www.amnesty.org/en/documents/pol30/001/2014/en/>

91 UN Working Group on the issue of human rights and transnational corporations and other business enterprises (UN Working Group on business and human rights), *Information Note on Climate Change and the Guiding Principles on Business and Human Rights*, June 2023, <https://www.ohchr.org/sites/default/files/documents/issues/business/workinggroupbusiness/Information-Note-Climate-Change-and-UNGPs.pdf>, para. 7.

pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change”.⁹² In light of scientific evidence, as reported by the International Panel on Climate Change (IPCC), greenhouse gas emissions must decline by 43% by 2030 in order for global warming to remain below 1.5°C above pre-industrial levels to prevent even worse impacts of climate change on the enjoyment of a wide range of human rights, including the rights to life, health, adequate housing, food, water and sanitation and to a clean, healthy and sustainable environment.⁹³

4.2 RESPONSIBILITY OF CORPORATE ACTORS TO RESPECT HUMAN RIGHTS

All companies have a responsibility to respect all human rights, wherever they operate in the world and throughout their operations, regardless of their nationality or size. This is a widely recognized standard of expected conduct as set out in international business and human rights standards including the UN Guiding Principles and the OECD Guidelines for Multinational Enterprises (OECD Guidelines).⁹⁴ This corporate responsibility to respect human rights is independent of a state’s own human rights obligations and exists over and above compliance with national laws and regulations protecting human rights.⁹⁵

The responsibility to respect human rights requires companies not to cause or contribute to human rights abuses through their own business activities, and address impacts in which they are involved, including by remediating any actual impacts. It also requires companies to seek to prevent or mitigate adverse human rights impacts directly linked to their operations, products or services by their business relationships, even if they have not contributed to those impacts.⁹⁶

An enterprise “contributes to” an impact if “its activities, in combination with the activities of other entities, cause the impact, or if the activities of the enterprise cause, facilitate or incentivise another entity to cause an adverse impact.”⁹⁷ The following factor may be taken into consideration: “the extent to which an enterprise could or should have known about the adverse impact or potential for adverse impact, i.e. the degree of foreseeability”.⁹⁸

To meet its corporate responsibility to respect, a company should take proactive and ongoing steps to identify and respond to its potential or actual human rights impacts. Importantly, businesses should implement a due diligence process to identify, prevent, mitigate and account for how they address their human rights impacts that the enterprise may cause or contribute to through its own activities, or which may be directly linked to its operations, products or services by its business relationships.⁹⁹

92 UNFCCC, Paris Agreement, December 2015, Article 2(1)(a).

93 International Panel on Climate Change (IPCC), “The evidence is clear: the time for action is now. We can halve emissions by 2030.”, 4 April 2022, <https://www.ipcc.ch/2022/04/04/ipcc-ar6-wgiii-pressrelease/>; Amnesty International, *Stop burning our rights! What governments and corporations must do to protect humanity from the climate crisis* (Index: POL 30/3476/2021), 7 June 2021, <https://www.amnesty.org/en/documents/pol30/3476/2021/en/>

94 This responsibility was expressly recognized by the UN Human Rights Council on 16 June 2011, when it endorsed the UN Guiding Principles on Business and Human Rights, and on 25 May 2011, when the 42 governments that had then adhered to the Declaration on International Investment and Multinational Enterprises of the OECD unanimously endorsed a revised version of the OECD Guidelines for Multinational Enterprises. See *Human Rights and Transnational Corporations and other Business Enterprises*, Human Rights Council, Resolution 17/4, 6 July 2011, UN Doc. A/HRC/RES/17/4; *OECD Guidelines for Multinational Enterprises*, OECD, 2011, <https://www.oecd.org/corporate/mne>.

95 UN Guiding Principles, Principles 11 and 13 including Commentary.

96 UN Guiding Principles, Principle 11 including Commentary.

97 OECD, “OECD Due Diligence Guidance for Responsible Business Conduct”, 2018, Question 29.

98 OECD, “OECD Due Diligence Guidance for Responsible Business Conduct”, 2018, Question 29.

99 UN Guiding Principles, Principle 17.



THE UN GUIDING PRINCIPLES INDICATE THAT COMPANIES SHOULD REMEDIATE ANY HUMAN RIGHTS ABUSE TO WHICH THEY HAVE CAUSED OR CONTRIBUTED.

When conducting human rights due diligence, a company may identify that it may cause or contribute to – or already be causing or contributing to – a human rights abuse. In these cases, the business enterprise should cease or prevent the impact, and where applicable, use its leverage to mitigate any remaining impact.¹⁰⁰ The UN Guiding Principles explain that where impacts are outside of the business enterprise’s control but are directly linked to their operations, products or services through their business relationships – for example, the customers of petrochemical companies that cause or contribute to harms – the company should seek to mitigate the human rights impact by exercising leverage, or seek to improve leverage where leverage is limited, including through collaboration if appropriate.

The UN Guiding Principles indicate that companies should remediate any human rights abuse to which they have caused or contributed.¹⁰¹ Remedy should include guarantees of non-repetition as well as satisfaction,¹⁰² compensation and other measures of reparation as appropriate.¹⁰³ The actual reparation that should be provided in each case will depend on the nature of the right violated, the harm suffered and the wishes of those affected. The touchstone of reparation, however, is that it must seek to remove the consequences of the violation and, as far as possible, restore those who have been affected to the situation they would have been in had the violation not occurred.

The UN Guiding Principles do not explicitly mention the climate crisis. However, two of the main international human rights law instruments to which the UN Guiding Principles specifically refer (in UN Guiding Principle 12) – the ICCPR and ICESCR – have been interpreted since 2011 in a manner consistent with international environmental and climate law. According to the UN Working Group on business and human rights, the responsibility of business enterprises under the UN Guiding Principles to respect human rights includes “the responsibility to act in regard to actual and potential impacts related to climate change.”¹⁰⁴ Among other measures, to fulfil this responsibility companies should integrate climate change considerations in all aspects of the human rights due diligence process throughout their operations; take urgent remedial action, including ceasing any climate change-related human rights impacts that they cause or contribute to; and phase out both the use of fossil fuels and the production of greenhouse gas emissions.¹⁰⁵

100 UN Guiding Principles, Principle 17.

101 UN Guiding Principles, Principle 15.

102 Satisfaction covers a broad range of measure which will be applicable as appropriate to the circumstances and includes: measures aimed at the cessation of the violations; verification of the facts and full and public disclosure of the truth; a public apology, including acknowledgment of the facts and acceptance of responsibility; and judicial and administrative sanctions against those responsible for the violations. See Principle 22, UN Basic Principles and Guidelines on the Right to a Remedy and Reparation for Victims of Gross Violations of International Human Rights Law and Serious Violations of International Humanitarian Law (UN Basic Principles on reparations), 21 March 2006, UN Doc. A/RES/60/147

103 UN Basic Principles on reparations.

104 UN Working Group on business and human rights, *Information Note on Climate Change and the Guiding Principles* (previously cited), para. 16.

105 UN Working Group on business and human rights, *Information Note on Climate Change and the Guiding Principles* (previously cited), paras 17-19.

5. THE PETROCHEMICAL INDUSTRY AND THE CLIMATE CRISIS

“Climate change is, quite simply, an existential threat for most life on the planet – including, and especially, the life of humankind.”¹⁰⁶

UN Secretary-General António Guterres

The petrochemical industry is reliant on fossil fuels for use as feedstock and fuel in the production of petrochemicals. The sector represents a significant source of greenhouse gas emissions from both burning fossil fuels for energy and from emissions produced through chemical processes. Yet the industry is often an overlooked driver of climate change and is expanding globally. Even a 100% renewable energy supply would not reduce emissions to levels compatible with the Paris Agreement, unless emissions resulting from production processes and from the feedstock in heavy industries, such as the petrochemical sector, are also significantly reduced. Effective processes and technologies for this are yet to be developed.¹⁰⁷ The IPCC has recognized that projections for increasing plastic production “do not align with necessary emission reductions” and the need for a “substantial reduction in fossil fuel use” to limit the global temperature rise.¹⁰⁸ To accelerate an equitable shift away from fossil fuels, a bloc of Pacific nations, supported by over 2,000 civil society organizations, is calling for a Fossil Fuel Non-Proliferation Treaty to prevent the further expansion of fossil fuels and manage an equitable phase out of their existing production.¹⁰⁹

On 2 March 2022, the UN Environment Assembly adopted a historic resolution to end plastic pollution and forge an international legally binding instrument (UN Treaty on Plastics Pollution) by 2024, that addresses the full life cycle of plastic, including its production, design and disposal.¹¹⁰ The American Chemistry Council, which counts ExxonMobil and Shell among its members, lobbied to limit the proposed treaty’s scope to plastics waste, rather than the entire plastics supply chain which includes chemical production,¹¹¹ although the Zero Draft published in September 2023 did include proposals to restrict the production of plastics.¹¹²

106 UN, “Secretary-General’s remarks at Austrian World Summit [as delivered]”, 15 May 2018, available at <https://www.un.org/sg/en/content/sg/statement/2018-05-15/secretary-generals-remarks-austrian-world-summit-delivered>

107 European Climate Foundation, “Industry and Innovation”, <https://europeanclimate.org/expertises/industry-innovation/> (accessed on 4 September 2023).

108 IPCC, *Climate Change 2022: Mitigation of Climate Change*, 4 April 2022, <https://www.ipcc.ch/report/ar6/wg3/> p.1194; IPCC, “The evidence is clear: the time for action is now. We can halve emissions by 2030.”, 4 April 2022, <https://www.ipcc.ch/2022/04/04/ipcc-ar6-wgiii-pressrelease/>

109 Amnesty International, “Urgent fossil fuel phase-out critical to protect rights” (Index: IOR 40/5405/2022), 4 April 2022, <https://www.amnesty.org/en/documents/IOR40/5405/2022/en/>

110 UN Environment Assembly, Resolution 5/14: End plastic pollution: Towards an international legally binding instrument, 2 March 2022, UN Doc. UNEP/EA.5/Res.14.

111 Financial Times, “Manufacturers lobby to weaken UN global plastics treaty proposal”, 24 February 2022, available at <https://www.ft.com/content/a7d272c8-a1e0-4975-92de-88c99d763157>

112 UN Environment Programme, “Zero draft text of the international legally binding instrument on plastic pollution, including in the marine environment”, 4 September 2023, UN Doc. UNEP/PP/INC.3/4, available at <https://wedocs.unep.org/bitstream/handle/20.500.11822/43239/ZERODRAFT.pdf>

This chapter highlights how fossil fuel companies are driving an expansion of the petrochemical industry and how the industry's greenhouse gas emissions threaten US climate targets. It also examines the nexus between petrochemical pollution and extreme climate-related weather events and the impacts on fenceline communities, and underscores the urgency of a just transition for the people of Texas.

5.1 PETROCHEMICALS: FOSSIL FUEL'S LIFELINE

The fossil fuel industry has identified plastics production as a lifeline to offset the anticipated decline in demand for fossil fuels, which is driving a huge expansion of the petrochemical industry.¹¹³ In its 2018 Outlook for Energy report, ExxonMobil projects that the company could offset losses from the transition to electric vehicles with growth in petrochemicals and commercial transportation.¹¹⁴ Plastics production is forecast to double by 2040.¹¹⁵ Worldwide, more than 500 petrochemical plants are planned or announced to begin production by 2030.¹¹⁶ In the USA alone, more than 120 new petrochemical projects are planned.¹¹⁷

This planned expansion has significant ramifications for the climate. According to International Energy Agency estimates, petrochemical production will account for over a third of the growth in oil demand by 2030, and nearly half of the growth in oil demand by 2050. The agency further estimates that the petrochemical sector will account for 7% of the growth in gas demand by 2030.¹¹⁸

5.2 PETROCHEMICAL INDUSTRY IN THE USA

In the USA refining and petrochemical industries emit an estimated 430 million metric tons of carbon dioxide equivalent a year.¹¹⁹ The USA's petrochemical and plastics expansion undermines the country's commitment to a net zero target by 2050, required to limit the rise in global temperatures to 1.5°C above pre-industrial levels.¹²⁰ The oil and gas industries are the largest industrial source of methane emissions in the USA, releasing more methane than the total emissions of all sources of greenhouse gases (for example, total greenhouse gas emissions from the oil and gas industry, cattle industry, and so on) from 164 countries combined, according to the EPA.¹²¹ Methane is more potent at trapping heat in the atmosphere than carbon dioxide and therefore reducing emissions is critical to slowing the pace of climate change and to preventing the earth from passing irreversible tipping points. In December 2023, the EPA announced a new rule to "sharply reduce methane and other harmful air pollutants from the oil and natural gas industry", including from existing sources.¹²² According to the state of Texas,

113 F. Bauer and others, "Petrochemicals and climate change: Powerful fossil fuel lock-ins and interventions for transformative change", May 2023, IMES/EESS Report, Volume 130, Lund University, available at https://lucris.lub.lu.se/ws/portalfiles/portal/146757003/LU_IVL_2023_petrochem_web.pdf; Beyond Plastics, "How the fossil fuel industry is pushing plastics on the world", 29 January 2022, <https://www.beyondplastics.org/news-stories/how-the-fossil-fuel-industry-is-pushing-plastics-on-the-world>.

114 ExxonMobil, "2018 Outlook for Energy: A View to 2040", 2018 (copy on file with Amnesty International).

115 International Organization for Standardization, "Rethinking the future of plastics", 31 March 2022, <https://www.iso.org/news/ref2792-1.html>

116 RMI, *Emissions Out the Gate: State of the Refining and Petrochemical Industries*, 2022, <https://rmi.org/insight/emissions-out-the-gate> p.25

117 Bloomberg Philanthropies, "Ending petrochemical pollution at the source", <https://www.bloomberg.org/environment/moving-beyond-carbon/beyond-petrochemicals/> (accessed on 22 June 2023)

118 International Energy Agency, *The Future of Petrochemicals*, October 2018, <https://www.iea.org/reports/the-future-of-petrochemicals>

119 RMI, *Emissions Out the Gate: State of the Refining and Petrochemical Industries*, 2022, <https://rmi.org/insight/emissions-out-the-gate>

120 US Department of State and US Executive Office of the President, *The Long-term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050*, November 2021, <https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf>

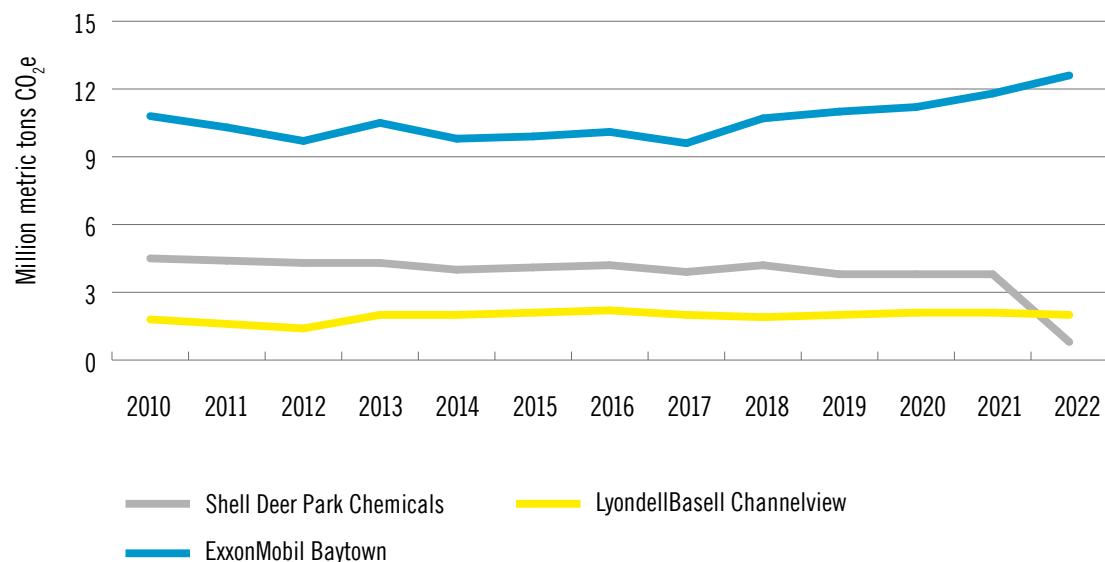
121 EPA, "Estimates of methane emissions by segment in the United States", <https://www.epa.gov/natural-gas-star-program/estimates-methane-emissions-segment-united-states>, (accessed on 14 September 2023); EPA, "U.S. to sharply cut methane pollution that threatens the climate and public health", 2 November 2021, <https://www.epa.gov/newsreleases/us-sharply-cut-methane-pollution-threatens-climate-and-public-health>

122 EPA, "Biden-Harris Administration finalizes standards to slash methane pollution, combat climate change, protect health, and bolster American innovation", 2 December 2023, <https://www.epa.gov/newsreleases/biden-harris-administration-finalizes-standards-slash-methane-pollution-combat-climate>

the EPA “is exceeding its authority” by disregarding the role of individual states in regulating methane emissions.¹²³

Texas is the state with the largest annual carbon dioxide emissions in the USA, releasing 663.5 million metric tons in 2021.¹²⁴ Texas’ industrial sector, including the state’s refineries and petrochemical plants, accounts for more than half of the state’s energy consumption.¹²⁵ As one of the world’s largest petrochemical complexes, greenhouse gases emitted by the entire petrochemical industry along the Houston Ship Channel represent a significant threat to the climate. Amnesty International reviewed data on greenhouse gas emissions from the petrochemical-producing facilities subject to this research, as reported to the EPA as required by the Greenhouse Gas Reporting Program.¹²⁶ In 2022, the ExxonMobil Baytown Complex reported emitting 12.6 million metric tons of carbon dioxide equivalent (CO₂e), while LyondellBasell’s Channelview Complex and Shell Deer Park reported emitting two million and 0.8 million metric tons of CO₂e, respectively.¹²⁷ Despite the urgency of the climate crisis, these petrochemical-producing facilities have not significantly reduced their greenhouse gas emissions in over a decade, while emissions at the ExxonMobil Baytown Complex have increased, as shown by the chart below. Amnesty International asked Shell to confirm whether the sudden decline in CO₂e in 2022 was a reporting error: at the time of publication, Shell had not responded to this query.

Facility CO₂e emissions by year



Source: EPA, “Greenhouse Gas Emissions from Large Facilities”, <https://ghgdata.epa.gov/ghgp/main.do> [accessed on 8 November 2023]. This database does not hold information on ITC Deer Park.

123 Texas Commission on Environmental Quality (TCEQ) and Railroad Commission of Texas (RRC), “Comments on the United States Environmental Protection Agency’s (EPA’s) Proposed Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review”, 13 February 2023, available at https://www.rrc.texas.gov/media/hhvontz/epa-comments_021323.pdf

124 US Energy Information Administration, “Rankings: Total carbon dioxide emissions, 2021 (million metric tons)”, <https://www.eia.gov/state/rankings/?sid=TX#series/226> (accessed on 5 September 2023).

125 US Energy Information Administration, “Texas: state profile and energy estimates”, <https://www.eia.gov/state/?sid=TX> (accessed on 5 September 2023).

126 EPA, “Greenhouse Gas Reporting Program (GHGRP)”, <https://www.epa.gov/ghgreporting> (accessed on 5 September 2023).

127 Search results from EPA, “2021 greenhouse gas emissions from large facilities”, <https://ghgdata.epa.gov/ghgp/main.do> (accessed on 5 September 2023).

The petrochemical producing facilities subject to this research have been significant contributors of greenhouse gas emissions and have not significantly decreased, or even slightly increased, their emissions in the last decade. The causes and effects of climate change are well established and the companies themselves report this data, indicating that despite having knowledge of the harms caused by their emissions they have failed to take adequate measures – for example, making the necessary investments and upgrades to infrastructure – to ensure their operations align with net zero targets. In its response to Amnesty International’s findings, LyondellBasell said: “We are... committed to reducing greenhouse gas emissions from our global operations and value chain and we have set clear targets to meet this commitment.”¹²⁸

5.3 EXTREME WEATHER AND CHEMICAL RELEASES

Pollution from the petrochemical industry not only fuels the climate crisis but is also exacerbated by extreme climate-related weather events, which in turn significantly increases health risks for fenceline communities. The Houston Ship Channel’s location on the Gulf of Mexico, combined with a heavy concentration of petrochemical facilities, makes the region sensitive to extreme weather disasters that are caused and made worse by climate change. A growing body of research shows that changing climate conditions are contributing to extreme weather events in Texas, including record heat, flooding and hurricanes.¹²⁹

Petrochemical infrastructure along the Houston Ship Channel is acutely vulnerable to extreme weather events that can cause physical damage to the infrastructure itself as well as power failures, leading to leaks, fires and explosions.¹³⁰ A study by researchers at Rice University found that for severe storm events, the risk of spills from aboveground storage tanks along the Houston Ship Channel has “increased substantially since 1970”, owing to greater structural vulnerability and changes in siting.¹³¹ Petrochemical facilities and refineries shut down operations ahead of extreme weather for safety in anticipation of flooding, equipment failures due to power outages and other potential disruptions to operations. This involves flaring chemicals that release larger amounts of pollution than during normal production, impacting the environment and fenceline communities. Rather than shutting down early and slowly to release less air pollution, facilities often delay the process to maximize production and revenue.¹³² Chrystal Beasley, a Houston-based environmental engineer, told Amnesty International:

“Ultimately industry gets a pass for natural disasters. The best way for industry to prepare for a hurricane would be to shut down. A lot of them want to continue operating to maintain production.”¹³³

128 Letter from LyondellBasell, 1 December 2023. The full letter is in Annex 1.

129 John Nielsen-Gammon and others, “Assessment of historic and future trends of extreme weather in Texas, 1900-2036”, 2021, available at <https://climatetexas.tamu.edu/files/ClimateReport-1900to2036-2021Update>; S. Wang and others, “Quantitative attribution of climate effects on Hurricane Harvey’s extreme rainfall in Texas”, 2018, Environmental Research Letters, Volume 13, available at <https://iopscience.iop.org/article/10.1088/1748-9326/aabb85/pdf>; IPCC, “2021: Weather and climate extreme events in a changing climate” in Climate Change 2021: The Physical Science Basis, https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter11.pdf, 1513-1589.

130 Interview by video call with Daniel Cohan, Associate Professor, Civil and Environmental Engineering at Rice University, 18 May 2023.

131 J. R. Elliott and others, “Evolution of social vulnerability and risks of chemical spills during storm surge along the Houston Ship Channel”, June 2017, Natural Hazards Review, Volume 18, Issue 4.

132 Interviews conducted by Amnesty International. See also: Grist, “Even shut down, Texas oil refineries in Hurricane Laura’s path will emit nearly 4 million pounds of pollution”, 26 August 2020, <https://grist.org/climate/even-shut-down-texas-oil-refineries-in-hurricane-lauras-path-will-emit-nearly-4-million-pounds-of-pollution/>

133 Interview by video call with Chrystal Beasley, a Houston-based environmental engineer, 16 May 2023.

In August 2017, Hurricane Harvey – a powerful Category 4 hurricane – caused devastation in Texas and Louisiana. The Center for Biological Diversity found that nearly one million pounds of petrochemical pollution had been leaked in the region as a result of flaring and chemical spills connected to Harvey.¹³⁴ Research shows that global warming increased the rainfall intensity associated with Harvey by 8% to 19%, while extreme rainfall events along the Gulf Coast are on the rise, indicating that harsh weather conditions are likely to become increasingly common and pose risks to communities.¹³⁵

Texas is increasingly experiencing periods of severe cold or heat that similarly led to facility shutdowns. During the winter freeze in 2021 that claimed over 200 lives in Texas between 11 and 20 February, the shutdown and startup of petrochemical facilities emitted an additional 3.5 million pounds of pollution into the air in Texas; one-fifth of this additional pollution originated from the Houston area.¹³⁶

Communities are not equally vulnerable to the impacts of climate change and extreme weather events as they have differing resources at their disposal to prepare for, respond to, cope with and recover from disaster events.¹³⁷ Fenceline communities acutely feel the impacts of climate change in tandem with the health and environmental burdens of increased pollution and spills that coincide with extreme weather events. Communities along the Houston Ship Channel are among the most at risk in the USA from these shifts.¹³⁸ This adds further burden to fenceline communities already facing the cumulative impacts of industrial pollution and further entrenches inequalities faced by marginalized communities.

5.4 JUST ENERGY TRANSITION

In Texas, over 450,000 people work in the fossil fuel industry, including oil and gas extraction, refining, petrochemical production and related manufacturing operations. While the industry has provided economic opportunities and livelihoods for many, key trade unions are in favour of climate mitigation measures and a just transition and recognize the potential for Texas to become an international leader in clean energy.¹³⁹

“Texans are facing several converging crises: a changing climate that is hurting working people first and worst, skyrocketing income inequality, and deep racial injustice... [W]e believe the Texas Climate Jobs Project can lead the way in transforming our economy in ways that lift up working families and communities while protecting the air we breathe and the water we drink. We must make sure that the workers who have powered this state for generations are not left behind.”¹⁴⁰

Rick Levy, President of the Texas AFL-CIO

134 Center for Biological Diversity, “Analysis: Nearly 1 million pounds of seven deadly air pollutants released by Texas refineries during Harvey floods”, 1 September 2017, https://www.biologicaldiversity.org/news/press_releases/2017/air-pollution-09-01-2017.php

135 Geert Jan van Oldenborgh and others, “Attribution of extreme rainfall from Hurricane Harvey, August 2017”, 2017, Environmental Research Letters, 12, <https://iopscience.iop.org/article/10.1088/1748-9326/aa9ef2>

136 The Guardian, “Texas freeze led to release of tons of air pollutants as air refineries shut”, 21 February 2021, <https://www.theguardian.com/us-news/2021/feb/21/texas-freeze-oil-refineries-shut-release-air-pollutants>

137 C. T. Emrich and S. L. Cutter, “Social vulnerability to climate-sensitive hazards in the southern United States”, 1 July 2011, Weather, Climate, and Society, Volume 3, Issue 3, <https://doi.org/10.1175/2011WCAS1092.1>

138 P. Grace Tee Lewis and others, “Characterizing vulnerabilities to climate change across the United States”, 2023, Environment International, Vol. 172, <https://www.sciencedirect.com/science/article/pii/S0160412023000454?via%3Dihub>

139 Cornell University and Occidental College, *Combatting Climate Change, Reversing Inequality: A Climate Jobs Program for Texas*, July 2021, <https://ecommons.cornell.edu/handle/1813/104211>

140 Cornell University, *Combatting Climate Change* (previously cited).



Flaring and black smoke coming from petrochemical plants along the Houston Ship Channel after a tornado tore through southeast Houston on 22 January 2023. © 2023 Houston Chronicle via Getty Images (Photographer: Raquel Natalicchio)

In August 2021, a coalition of Texas labour unions launched the Texas Climate Jobs Project, an initiative based on the outcome of a consultation with 27 Texas labour unions, which acknowledged the impact of climate change in Texas and the necessity of a just transition away from fossil fuels.¹⁴¹ A just transition requires governments to adopt human rights-consistent energy transition plans which assist workers reliant on fossil fuel production and all those who might lose their jobs due to the transition to secure alternative livelihoods that provide for sustainable and decent work.¹⁴² Studies suggest that Texas' transition from fossil fuels to clean energy has the potential to create more than 1.1 million direct jobs in Texas within 25 years in areas such as wind and solar generation, electric vehicle manufacturing and the advancement of new technologies.¹⁴³ The transition is also an opportunity for Texas to address its crisis of inequality by creating decent jobs in clean energy industries, with terms and conditions for workers that fulfil international human rights standards.

141 ILR Worker Institute, "Texas unions launch major effort to combat climate change, tackle inequality in US energy capital", 26 July 2021, <https://www.ilr.cornell.edu/worker-institute/blog/reports-and-publications/texas-unions-launch-major-effort-combat-climate-change-tackle-inequality-us-energy-capital>

142 Amnesty International, *Just Transition Towards Greener Economies: Submission to the UN Special Rapporteur on Extreme Poverty and Human Rights* (Index: IOR 40/2503/2020), 10 June 2020, <https://www.amnesty.org/en/documents/ior40/2503/2020/en/>, p. 2.

143 ILR Worker Institute, (previously cited), p. 40.

6. ADVERSE HUMAN RIGHTS IMPACTS OF THE PETROCHEMICAL INDUSTRY

Toxic pollution from the petrochemical industry and routine chemical fires, explosions and other spills harm the right to a clean, healthy and sustainable environment, the right to health, and even the right to life. Fenceline communities that bear the brunt of petrochemical pollution along the Houston Ship Channel are disproportionately lower-income and racialized, undermining the right to non-discrimination. Inadequate access to information on petrochemical pollution and associated risks to health impairs the right to information, while fenceline communities are unable to exercise their right to participate and raise concerns about the petrochemical industry due to barriers to meaningful participation. This chapter examines the different ways in which fenceline communities and workers are adversely impacted by the petrochemical industry, through a human rights lens.

6.1 THE RIGHT TO A HEALTHY ENVIRONMENT

The right to a clean, healthy and sustainable environment is essential to the full enjoyment of all other rights, particularly the right to health.¹⁴⁴ For communities along the Houston Ship Channel, this right is undermined by the impact of climate change and pollution of air, land and water; of which the petrochemical industry is a contributor. Amnesty International reviewed EPA enforcement records covering the past three years (12 quarters) for the facilities included in this report.¹⁴⁵ The EPA categorizes a violation as “high priority” if it is “likely to result in impacts that pose a significant risk to human health and/or the environment from direct or indirect release of air pollutants” or “may harm the ability to implement Clean Air Act programs”.¹⁴⁶ At the time of writing, ExxonMobil Baytown Complex had violations of the Clean Air Act deemed “high priority” in every quarter and violations of the Clean Water Act in six quarters; LyondellBasell Channelview Complex had violations of the Clean Air Act in two quarters and violations of the Clean Water Act in seven quarters; ITC Deer Park had “high priority” violations of the Clean Air Act in every quarter and violations of the Clean Water Act in five quarters; and in every quarter Shell Deer Park Chemicals had “high priority” violations of the Clean Air Act and violations of the Clean Water Act.¹⁴⁷

Abuse of the right to a healthy environment has negative implications, both direct and indirect, for fenceline communities’ effective enjoyment of all other human rights. The petrochemical industry is also responsible for noise and light pollution that impacts communities, as well as various chemical odours that seep into homes and schools.

144 UN General Assembly, Resolution on the Human Right to a Clean, Healthy and Sustainable Environment, 26 July 2022, UN Doc. A/76/L.75.

145 US Environmental Protection Agency, “Enforcement and compliance history online”, <https://echo.epa.gov/> (accessed on 4 December 2023).

146 EPA, *Revision of U.S. Environmental Protection Agency’s Enforcement Response Policy for High Priority Violations of the Clean Air Act*, 25 August 2014, <https://www.epa.gov/sites/default/files/2015-01/documents/hpvpolicy2014.pdf>

147 Some of the facilities had multiple facility reports. Results for Shell Deer Park Chemicals include Deer Park Refining Limited Partnership, records for which show Shell at the facility. Previously a joint venture, Shell sold its 50% interest in Deer Park Refining Limited Partnership in 2022.

6.1.1 AIR POLLUTION

“It’s kind of like we’re not worth clean air. We’re not asking for the freakin’ moon here. We’re asking for clean air... every time there’s a leak and every time I feel the effects of it, that’s an assault. That’s an assault on my body.”¹⁴⁸

Erandi Treviño, community member and advocate

Air quality in Houston and particularly in neighbourhoods along the Ship Channel is among the lowest in the USA.¹⁴⁹ TCEQ operates an air quality monitoring network throughout the state of Texas to monitor overall air quality for compliance with the Clean Air Act’s national ambient air quality standards. This network continuously collects samples and reports back data, made available on its website.¹⁵⁰ The petrochemicals industry also has its own air monitoring network, run by the Houston Regional Monitoring Corporation (HRM).¹⁵¹ HRM’s membership is comprised of several companies operating along the Ship Channel, including ExxonMobil, LyondellBasell and Shell.¹⁵² According to HRM, “air quality in the greater Houston area has improved significantly and continues to get better” and “a significant reduction in benzene levels has occurred since measurements began in 1988.”¹⁵³ But according to an analysis of more recent air monitoring data from TCEQ and HRM air monitors, HRM found that the overall concentration of VOCs was higher in 2021 than in 2012.¹⁵⁴ HRM data also showed that benzene levels have remained consistent between 2014 and 2021 and butadiene levels have remained consistent or increased in some areas, including some of those subject to this research such as Channelview and Deer Park.¹⁵⁵ Further, gaps in TCEQ’s air monitoring network mean that it is impossible to ascertain an accurate picture of fenceline communities’ exposure to harmful pollutants, due to the insufficient number of monitors and the placement of existing monitors which are often too far from communities or not downwind from petrochemical facilities.

148 Interview in person with Erandi Treviño, community member and professional advocate, 12 May 2023, Pasadena, Texas.

149 EPA, *A Closer Look at Air Pollution in Houston: Identifying Priority Health Risks*, <https://www3.epa.gov/ttn/chief/conference/ei16/session6/bethel.pdf>

150 TCEQ, “Air Quality and Monitoring”, <https://www.tceq.texas.gov/airquality/monops> (accessed 26 July 2023).

151 HRM, “Houston Regional Monitoring”, <https://us.planengage.com/hrm/page/HRM-Monitoring> (accessed on 8 August 2023).

152 HRM, “Our Membership”, 18 July 2023, <https://hrm.aecom.com/member.htm>

153 HRM, *What’s Happening to our Air Quality? 2021 Houston Air Quality Trends*, September 2022, <https://hrm.aecom.com/pdfs/Communications-brochure-20220919.pdf>

154 HRM, *What’s Happening to our Air Quality?* (previously cited).

155 Between 2014 and 2021, benzene levels (ppb) saw an overall increase in Deer Park from 0.38 to 0.42 and in Channelview from 0.43 to 0.45. In the same time period, butadiene levels (ppb) saw an overall increase in Deer Park from 0.09 to 0.18 and in Channelview remained the same at 0.21. Amnesty International wrote to HRM regarding the increase; a HRM representative responded: “HRM has taken note of the HRVOC (highly reactive VOC) data and will continue to track changes in HRVOC and other air pollutant concentrations”. It also said: “HRM does not investigate the amounts of air pollutants emitted... or specific actions taken by HRM’s member companies or others with respect to the amounts of air pollutants emitted by their operations.” See email from Amandes PLLC on behalf of HRM to Amnesty International, 18 October 2023, in Annex 1.



Active air monitoring sites along the Houston Ship Channel. Source: image provided by the EPA ¹⁵⁶

The Houston area has been designated by the EPA as a “serious nonattainment area” for failure to meet national ambient air quality standards for ozone since they were set in 2008,¹⁵⁷ which are lower than more stringent standards set in 2015.¹⁵⁸ In analysis conducted by the Guardian in 2023, Houston was ranked as the sixth worst hotspot in the USA for PM_{2.5}. This analysis also found that 80% of residents in the most polluted areas in Houston are people of colour; a pattern found in several pollution hotspots across the country.¹⁵⁹

Fenceline communities face chronic exposure from permitted petrochemical pollution from regular operations that negatively affect health, and are also routinely exposed to unauthorized pollution spikes that exceed permitted levels, putting their health at even greater risk.¹⁶⁰ These large releases are known as “upset emission events” and occur when equipment breaks down or production units are shutdown, restarted and repaired. In some cases, repeated upsets occur because of a lack of adequate investment, particularly in ageing infrastructure. Lasting from a few hours to several days or weeks, in some instances a single emissions event can exceed a facility’s permitted annual emissions.¹⁶¹ Daniel Cohan, an air pollution expert at Rice University, told Amnesty International that while overall emissions may have reduced in the last couple of decades, a significant portion of emissions come from “upsets”.¹⁶² He explained:

“Facilities aren’t doing enough to avoid and mitigate those upset emissions. On average at least once a month, we see some sort of refinery fire, leak, or other major event. Sometimes it makes the news when people see the explosion or when workers get injured on site or schools need to close for a day or two. But many upset emissions don’t even make the news, even though they are a big part of our pollution problems.”¹⁶³

¹⁵⁶ See Annex 2 for the EPA’s full response to Amnesty International.

¹⁵⁷ Federal Register, “Determinations of attainment by the attainment date, extensions of the attainment date, and reclassification of areas classified as serious for the 2008 Ozone National Ambient Air Quality Standards”, 7 October 2022, <https://www.federalregister.gov/documents/2022/10/07/2022-20458/determinations-of-attainment-by-the-attainment-date-extensions-of-the-attainment-date-and>

¹⁵⁸ Houston Public Media, “Advocates call for creative solutions as Houston region fails to meet decade-old federal ozone standards”, 17 November 2022, <https://www.houstonpublicmedia.org/articles/news/energy-environment/2022/11/17/437648/advocates-call-for-creative-solutions-as-houston-region-fails-to-meet-decade-old-federal-ozone-standards/>

¹⁵⁹ The Guardian, “Revealed: the 10 worst places to live in US for air pollution”, 8 March 2023, <https://www.theguardian.com/us-news/2023/mar/08/10-most-air-polluted-places-to-live-us>

¹⁶⁰ Environmental Integrity Project, *Illegal Air Pollution in Texas, 2020*, 14 October 2021, <https://environmentalintegrity.org/wp-content/uploads/2021/10/Illegal-Air-Pollution-in-Texas-2020.pdf>

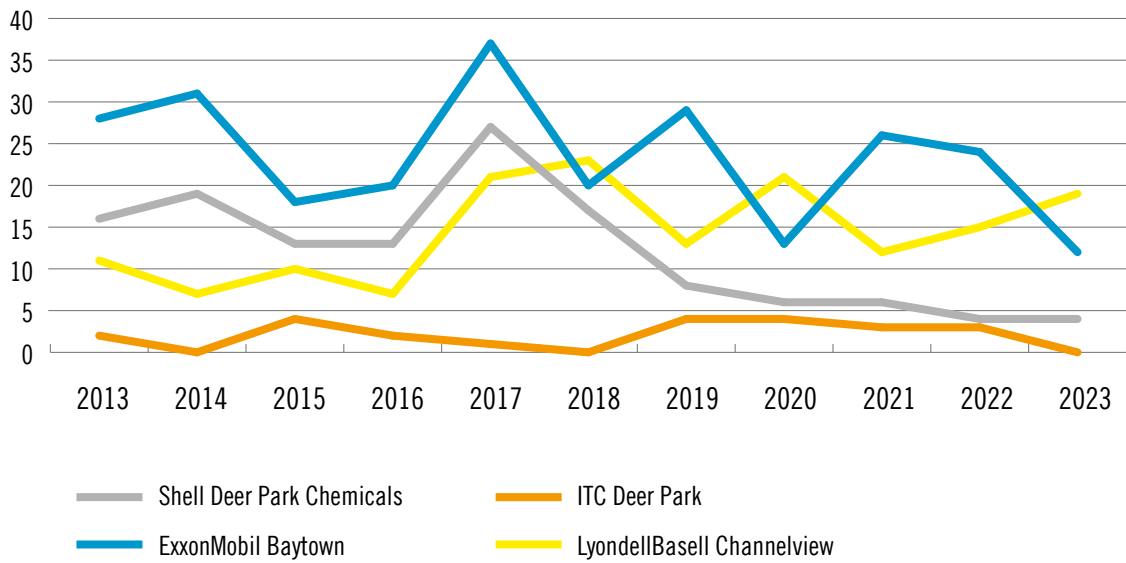
¹⁶¹ Sierra Club, *How Startup, Shutdown, and Malfunction Loopholes Give Free Passes to Polluters*, September 2022, https://www.sierraclub.org/sites/www.sierraclub.org/files/2022-09/SSM_FactSheet.pdf

¹⁶² Interview by video call with Daniel Cohan, Associate Professor, Civil and Environmental Engineering at Rice University, 18 May 2023.

¹⁶³ Interview by video call with Daniel Cohan, Associate Professor, Civil and Environmental Engineering at Rice University, 18 May 2023.

The below chart shows self-reported emissions events where air pollution exceeded permitted pollution limits over the last 10 years at the four facilities subject to this research.¹⁶⁴ Indicative of the number of excess emission events, rather than the volumes of excess pollution, it shows that violations are ongoing and, worryingly, for some facilities they appear to have either plateaued or are on the rise. This suggests that the companies have failed to take adequate steps to prevent harmful emissions that exceed their permitted limits, despite these harms occurring over several years. These emissions events represent major contributions to the cumulative air pollution that impacts fenceline communities.

Number of emissions events reported to TCEQ where air pollution exceeded limits¹⁶⁵



¹⁶⁴ It is important to note that this chart is not a comparison between the facilities, which have differing operations and capacities. ITC Deer Park is a storage facility whilst the other three facilities are manufacturers and therefore operations are inherently more polluting.

¹⁶⁵ Data obtained from TCEQ, "Air Emission Event Report Database" (search results from 1 January 2013 to 31 December 2023, excluding excess opacity events).

FLARING & HARMFUL POLLUTION AT LYONDELLBASELL PLANTS

In October 2021, three US subsidiaries of LyondellBasell agreed to pay US\$3.4 million in civil penalties for violations of the Clean Air Act involving excess emissions of hazardous pollutants and greenhouse gases at six manufacturing facilities, including the two facilities that make up the Channelview Complex.¹⁶⁶ The settlement arose from a suit brought by the US Department of Justice on behalf of the EPA, which claimed the companies failed to properly operate and monitor their industrial flares, which resulted in excess emissions of harmful air pollution.

The EPA brought the complaint based on the Lyondell's subsidiaries' "failures to adhere to good air pollution control practices, including their failures to properly operate, maintain, monitor, and control steam-assisted flares". The EPA stated the "violations resulted in thousands of tons of illegal emissions" of VOCs, hazardous air pollutants and other pollutants.¹⁶⁷ Under the settlement, LyondellBasell is required to make upgrades and perform compliance measures estimated to cost US\$50 million. The EPA also identified potential environmental justice concerns at the Channelview Complex flares, noting that the local population is disproportionately exposed to PM_{2.5}, ozone, toxic cancer risk and respiratory hazards.¹⁶⁸

6.1.2 WATER POLLUTION

A study of water pollution from oil refineries by the Environmental Integrity Project found that wastewater discharged by 68% of US refineries contributes to the "impairment" of downstream waterways – meaning they are too polluted to support healthy aquatic life, allow for recreational uses like swimming or fishing, or serve as a reliable source of drinking water.¹⁶⁹ The study found that almost 83% of US refineries report violating their permitted limits on water pollutants between 2019 and 2021. Along the Houston Ship Channel, ExxonMobil Baytown Refinery was found to have released the largest volume of pollutants into waterways of any refinery in the USA in 2021, having released almost 127 million pounds of dissolved solids.¹⁷⁰

Several community members that Amnesty International spoke to expressed concerns about water pollution in the Houston Ship Channel and frustration at not being able to practise fishing, which they viewed as an erosion of a cultural practice in the region. Signs dot the Houston Ship Channel in English and Spanish, warning residents that the fish are not fit for consumption due to unsafe contaminant levels, as advised by the Texas Department of State Health Services. However, high poverty rates, coupled with cultural practices of the region, may be contributing to continued fishing in the area. Community member "James" (not his real name) told Amnesty International: "People still go out with crab nets, because they're poor, they're getting dinner. It's really sad. I should be able to eat the fish out the water, but you can't do it."¹⁷¹

166 EPA, "Equistar Chemicals, LP; LyondellBasell Acetyls, LLC; and Lyondell Chemical Company Clean Air Act Settlement", 15 October 2021, <https://www.epa.gov/enforcement/equistar-chemicals-lp-lyondellbasell-acetyls-llc-and-lyondell-chemical-company-clean#violations>

167 *United States of America v. Equistar Chemicals, LP; LyondellBasell Acetyls, LLC; and Lyondell Chemical Co.*, Complaint, 13 October 2021, https://www.justice.gov/d9/press-releases/attachments/2021/10/14/lyondell_complaint_0.pdf

168 Department of Justice, "LyondellBasell companies agree to reduce harmful air pollution at six U.S. chemical plants", 14 October 2021, <https://www.justice.gov/opa/pr/lyondellbasell-companies-agree-reduce-harmful-air-pollution-six-us-chemical-plants>

169 Environmental Integrity Project, *Oil's Unchecked Outfalls*, 26 January 2023, <https://environmentalintegrity.org/wp-content/uploads/2023/01/Oils-Unchecked-Outfalls-03.06.2023.pdf>, p. 7.

170 Environmental Integrity Project, *Oil's Unchecked Outfalls* (previously cited), p. 5.

171 Interview in person with "James" (not his real name), community member, 9 May 2023, Baytown, Texas.



Signs along the Houston Ship Channel warn people not to eat any fish or blue crab due to the presence of toxic pollutants in the water. © 2023 Amnesty International (Photographer: Lauren Murphy)

Kristen Schlemmer, Legal Director at Bayou City Waterkeeper – a Houston-based non-profit organization – explained that the prevalence of flooding, coupled with the lack of zoning in the area, creates dangerous risks for fenceline communities’ health.¹⁷² People may be unknowingly exposed to harmful contaminants in the water during flooding; for example, they might walk through floodwaters to get to safety or check on loved ones, as was the case during Hurricane Harvey. She explained that floodwaters risk causing damage to petrochemical facilities and therefore also increase the likelihood of chemical spills, creating further health risks.¹⁷³

6.1.3 ODOUR POLLUTION

The vast majority of community members interviewed by Amnesty International reported being impacted by chemical odours, sometimes daily. Residents from all eight fenceline communities included in the research described detecting a range of different odours, from sweet smells to garlic, rotten eggs, sulphur and petroleum.¹⁷⁴ Many of the chemicals emitted by the petrochemical industry have distinctive odours, but others are odourless so communities would not be made aware of their presence. On several occasions, Amnesty International researchers detected chemical odours during visits to the Ship Channel, including in residential areas.

Shirley Williams lives approximately 320m away from the ExxonMobil Baytown Complex and said: “[The odour] constantly changes, it’s never the same. It can go from gassy to a sewage smell, to something rotten. There’s a lot of different bad odours.”¹⁷⁵ Shirley and her husband, Arthur, described encountering these odours on an almost daily basis, often in the morning and after it rains. Many residents shared these experiences, leading to a widely held belief that the industry releases toxic pollutants during the night and when it rains. Community members remarked that the odours often coincide with flaring at nearby plants.

172 Interview by video call with Kristen Schlemmer, Legal Director and Waterkeeper at Bayou City Waterkeeper, 1 June 2023.

173 Interview by video call with Kristen Schlemmer, Legal Director and Waterkeeper at Bayou City Waterkeeper, 1 June 2023.

174 Interviews with community members.

175 Interviews in person with Shirley Williams and Arthur Williams, community members, 9 May 2023, Baytown, Texas.

Several residents said they have become so accustomed to the smells that they no longer notice them as much, but they are reminded when they return from out of town or have visitors. Stephany Valdez, who lives in Baytown, said: “It smells gross, like a bunch of chemicals. That’s the smell of Baytown. You’ll notice it when you drive back in. My cousins come from Dallas, and they notice it when they come.”¹⁷⁶

Alondra Torres had been a resident of Channelview for around 10 months when she spoke to Amnesty International. New to the area, she is acutely impacted by the odours. She explained:

“It pretty much affects me and my family every single day. There’s always smells in the air, every time you step outside for a little while, you kind of get a gritty taste in your mouth. There have been times when I feel really uncomfortable being outside, or I’ve gone for a quick trip to the grocery store and I get a headache due to the smells... The smell is super strong, I can even smell it from the inside.”¹⁷⁷

Describing the smells, she went on to say: “The gas smell, you can’t get used to it; it smells like your house is going to blow up. Other times it smells like sour milk, a very sour smell.”¹⁷⁸ Alondra, like many others, adjusts the amount of time she spends outdoors because of the odours and concerns over potential exposure to toxic chemicals.



Shirley Williams, photographed in her garden, is frequently impacted by chemical odours. The ExxonMobil Baytown complex is visible from her house. © 2023 Amnesty International (Photographer: Lauren Murphy)

176 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

177 Interview by video call with Alondra Torres, community member and professional advocate, 11 May 2023.

178 Interview by video call with Alondra Torres, community member and professional advocate, 11 May 2023.



A petrochemical plant lit up at night. © Getty Images (Photographer: Chanin Nont)

6.1.4 NOISE AND LIGHT POLLUTION

Petrochemical plants typically operate 24 hours a day, seven days a week. At night these large facilities are well lit and flames from flare stacks are particularly visible. For fenceline communities, light and noise pollution can further reduce residents' quality of life and undermines their right to a healthy environment. Seven residents said they could see the flares from their homes at night. "James" said: "With the flares, it's like daytime. It's bad, but you get used to it."¹⁷⁹

Community members reported being disrupted by noise pollution from the industry, particularly those who live in close vicinity to facilities. Residents described hearing sounds from a "low growling" and "a constant quiet rumble", to "booms", "roaring" and the "jet engine that won't land".¹⁸⁰ In some cases, interviewees described the noise as so loud that it disrupts their sleep. Residents told local media that loud rumblings from flaring at Shell Deer Park Chemicals kept them awake in the nights immediately after the May 2023 fire, with one describing the sound as "a high noise like a jet engine running from the flares".¹⁸¹

179 Interview in person with "James" (not his real name), community member, 9 May 2023, Baytown, Texas.

180 May 2023 interviews with community members: "James" (not his real name), "Josephine" (not her real name), "Vincent" (not his real name), Shirley Williams, Arthur Williams, and Terri Blackwood.

181 Click2Houston, "Deer Park residents say loud rumbling kept them awake Friday night following Shell Chemical Plant fire", 6 May 2023, <https://www.click2houston.com/news/local/2023/05/06/deer-park-residents-say-loud-rumbling-kept-them-awake-friday-night-following-shell-chemical-plant-fire/>.

“Josephine” (not her real name), lives close to ExxonMobil Baytown. She said noise from the plant wakes her up “at least once or twice a week”.¹⁸² She added: “At night, they shoot those stacks off and they start the VOOOM! The vibrations. You can hear them and feel ‘em. Why would you want people to live next to a chemical plant? It doesn’t make any sense.”¹⁸³ Shirley Williams also lives close to ExxonMobil Baytown and frequently wakes from the noise, sometimes more than once a night. She explained the noise usually starts around 7pm when the flare stacks are lit, which she can see from her back garden. Sometimes she finds it “unbearable”.¹⁸⁴

6.1.5 SACRIFICE ZONE

The right to a clean, healthy and sustainable environment must be enjoyed without discrimination on the grounds of race, age, ethnicity or any other factor, however Amnesty International’s research shows that communities along the Houston Ship Channel are disproportionately denied this right. Areas in which communities are exposed to extreme levels of pollution and toxic contamination are known as “sacrifice zones”.¹⁸⁵ According to the Special Rapporteur on human rights and the environment:

“Today, a sacrifice zone can be understood to be a place where residents suffer devastating physical and mental health consequences and human rights violations as a result of living in pollution hotspots and heavily contaminated areas. The most heavily polluting and hazardous facilities, including... petroleum refineries, chemical plants... garbage dumps and hazardous waste incinerators, as well as clusters of these facilities, tend to be located in close proximity to poor and marginalized communities.”¹⁸⁶

The right to a clean, healthy and sustainable environment has been infringed upon to such an extent that Amnesty International considers the Houston Ship Channel to be a “sacrifice zone”. Often sacrifice zones are more accurately described as “racial sacrifice zones”, with these zones disproportionately concentrated in neighbourhoods, regions and countries populated by racialized people. As noted by the former Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance, racial sacrifice zones include “segregated neighbourhoods in the global North”. She also acknowledges that: “the primary beneficiaries of these racial sacrifice zones are transnational corporations that funnel wealth towards the global North and privileged national and local elites globally”.¹⁸⁷ Amnesty International’s research shows that this assessment reflects the reality for many racialized communities along the Houston Ship Channel, which operates as a racial sacrifice zone for the benefit of the petrochemical and other polluting industries operating in the area.

182 Interview in person with “Josephine” (not her real name), community member, 13 May 2023, Baytown, Texas.

183 Interview in person with “Josephine” (not her real name), community member, 13 May 2023, Baytown, Texas.

184 Interview in person with Shirley Williams, community member, 7 May 2023, Baytown, Texas.

185 Special Rapporteur on human rights and the environment, Report: *The right to a clean, health and sustainable environment: non-toxic environment*, 12 January 2022, UN Doc. A/HRC/49/53, para. 2.

186 Special Rapporteur on human rights and the environment, Supplementary information to the Report of the Special Rapporteur: *Additional sacrifice zones*, 2 March 2022, UN Doc. A/HRC/49/53, para 3.

187 Special Rapporteur on racism, Report: *Ecological Crisis, Climate Justice and Racial Justice* (previously cited), para. 2.

6.2 RISKS FROM CHEMICAL DISASTERS

“The explosions have just become so regular now and so normalized... When it happens, I think people just feel it’s like a cost of doing business, the cost of living in that area.”¹⁸⁸

Christian Menefee, Harris County Attorney

Fenceline communities and plant workers frequently face chemical disasters that undermine a range of rights. These incidents, such as explosions, fires and other spills, can occur at a facility or while petrochemicals are in transit. In addition to environmental damage, they can result in adverse health impacts, evacuation, property damage, injuries and even death. Since 2021 there have been at least 15 chemical explosions, fires and toxic releases reported along the Houston Ship Channel, resulting in at least 28 workers being injured and one death.¹⁸⁹ In 2023 alone, residents along the Houston Ship Channel have experienced at least seven petrochemical disasters, including six fires.¹⁹⁰ These figures only capture high-profile chemical disasters that receive media coverage and not the numerous less visible chemical releases that can still have devastating impacts on people. Communities closest to facility fencelines face the greatest potential harm and have the least time to react in the event of a catastrophic release.

Chemical disasters happen so frequently they have become normalized for some residents.¹⁹¹ Community member and advocate Patricia Gonzales expressed her frustration to Amnesty International: “It shouldn’t be norm for us that there’s an explosion and we think nothing of it.”¹⁹²

In response to chemical disasters, “shelter-in-place” advisories are often issued by local agencies. This requires residents to stay indoors and try to avoid chemical exposure by “sealing” rooms by turning off air conditioners and taking other measures to stop outside air from entering, until the advisory is lifted.¹⁹³ Frequent chemical emergencies mean that fenceline communities along the Houston Ship Channel are accustomed to being told to shelter-in-place, although a few residents raised concerns regarding the effectiveness of this measure, given that it is virtually impossible to entirely stop air from entering their homes.¹⁹⁴ Children are taught how to shelter-in-place in some schools along the Houston Ship Channel and Local Emergency Planning Committees (LEPCs) have created educational resources on the topic. For example, Deer Park LEPC has a turtle mascot known as “Wally Wise Guy” who teaches children and adults how to shelter-in-



Screengrab of the Greater Baytown LEPC’s shelter-in-place video

188 Interview in person with Christian Menefee, Harris County Attorney, 10 May 2023, Houston, Texas.

189 According to a review of media articles by Amnesty International from January 2021 to September 2023. The number of injured workers is likely to be higher, as contractors (who are not considered employees) are often not included in these counts and media do not always have access to information on worker injuries.

190 2023 incidents include: 6 January fire at [Celanese Industrial](#); 23 February fire at [Pemex](#); 14 March fire at [Pemex](#); 22 March explosion and fire at [Ineos Phenol](#); 5 May fire at [Shell Deer Park Chemicals](#); 18 May fire at [Marathon Petroleum](#); 4 December gas leak at [Altivia Chemicals](#).

191 Interviews conducted by Amnesty International.

192 Interview in person with Patricia Gonzales, community member and professional advocate, 9 May 2023, Pasadena, Texas.

193 Centers for Disease Control and Prevention, “Stay put: Learn how to shelter in place”, <https://emergency.cdc.gov/shelterinplace.asp> (accessed on 7 July 2023).

194 Interviews conducted by Amnesty International.

place.¹⁹⁵ A cartoon video on the Greater Baytown LEPC's website that depicts a schoolboy encountering a chemical emergency begins with the caption, "Stuff Happens".¹⁹⁶ While Amnesty International values measures taken by local authorities to ensure communities can take measures to protect themselves in case of emergency, it is important to acknowledge how living under the constant threat of a chemical disaster can impact the lives of adults and children and should not be normalized or minimized.

🔍 CASE STUDY



A fire at Shell Deer Park Chemicals on 5 May 2023 lasted for three days and sent a huge plume of smoke into the air. A tenfold increase in concentrations of benzene and 1,3-butadiene were detected in the surrounding air but TCEQ deemed these not atypically high. © 2023 Associated Press / Alamy Stock Photo

FIRE AT SHELL DEER PARK CHEMICALS

On 5 May 2023, a large fire broke out at Shell Deer Park Chemicals while Amnesty International was conducting research in the area.¹⁹⁷ Researchers observed a large plume of dark grey smoke, approximately 15 minutes after the fire broke out, from the other side of the Ship Channel. Extinguished the next morning, the fire later reignited and burned for another two days. On 7 May, Shell announced it had exceeded wastewater storage capacity: "As a result of the large amount of water required to control the fire... runoff water is being directed to the channel as part of a controlled discharge. As a precaution, [a] boom¹⁹⁸ has been deployed to prevent any product from entering the channel."¹⁹⁹ Later that day, "a light sheen was observed" outside of the boom and Shell deployed additional clean-up crews to the area.²⁰⁰ Shell continued to discharge wastewater to the Ship Channel until 12 May.²⁰¹

195 Deer Park LEPC, "Wally Wise Guy", <http://www.wally.org/1685/Wally-Wise-Guy> (accessed on 7 July 2023)

196 Greater Baytown Area LEPC, "Shelter-in-place video", <https://www.gbcclepc.com/shelter-in-place-videos> (accessed on 7 July 2023)

197 A facility that produces olefins, a class of chemicals that include ethylene, propylene and 1,3-butadiene.

198 A boom is a temporary floating barrier used to contain marine spills.

199 Shell Chemicals, 008 Outfall Response, 7 May 2023, <https://web.archive.org/web/20230508183159/https://008outfallresponse.com/> (via WayBack Machine).

200 Shell Chemicals, 008 Outfall Response (previously cited).

201 TCEQ, "Shell fire, Deer Park", May 2023, <https://www.tceq.texas.gov/response/shell-pemex-deer-park>

CASE STUDY (continued)

As a result of the fire, at least seven contract workers at the facility sustained injuries, according to lawsuits filed against the company.²⁰² Shell later reported that its air monitoring had not detected harmful levels of chemicals in local communities.²⁰³ On day two, Shell wrote in an online update: There is no danger... however residents and neighbors may notice black smoke, flaring and increased noise from the facility.”²⁰⁴

TCEQ monitoring units were deployed to Deer Park and Channelview. On 6 May, TCEQ mobile monitors detected benzene at 34.2 parts per billion (ppb) and 1,3-Butadiene at 19.4 ppb in Channelview.²⁰⁵ Both substances – which are human carcinogens – had peaked at around 2 ppb in the previous 10 days at stationary air monitors in Channelview, according to analysis by the Texas Tribune.²⁰⁶ According to TCEQ, it “did not detect any readings of health concern.”²⁰⁷ Tim Doty, a former manager of TCEQ’s mobile monitoring program, noted the readings “seem elevated... from what the background should be” and therefore should have prompted further investigation.²⁰⁸ TCEQ told the Texas Tribune it did not consider those levels to be “atypically high concentrations,” sitting below half the threshold density the TCEQ considers requiring further investigation. The WHO has said that exposure to benzene is “a major health concern” and as such, no safe level of exposure can be recommended.²⁰⁹

With regards to the discharge of wastewater, TCEQ said “the total amount is under investigation”.²¹⁰

Amnesty International asked TCEQ for the findings of its investigations into the fire; as of the time of writing, TCEQ had not responded. Shell’s final report submitted to TCEQ details the release of over 820,000 pounds of airborne contaminants during the incident.²¹¹ The EPA conducted an inspection at the facility in August 2023, in response to the May 2023 fire. It told Amnesty International the inspection report is currently being finalized before being made public.²¹²

In August 2023, the Texas Attorney General filed a lawsuit against Shell, seeking damages of more than US\$1 million for environmental damage caused by the fire.²¹³ At the time of writing, the case is still pending.

202 Abraham Watkins, “Abraham Watkins representing over 35 clients files multiple lawsuits against Shell USA & Shell Chemical after massive Deer Park fire”, 12 May 2023, <https://www.abrahamwatkins.com/wp-content/uploads/2023/05/Press-Release-Final-2.pdf>; Arnold and Itkin, “Suit filed against Shell for Deer Park chemical fire”, 10 May 2023, <https://www.arnolditkin.com/news/2023/suit-filed-against-shell-for-deer-park-chemical/>

203 Shell Chemicals, 008 Outfall Response (previously cited).

204 Shell Chemicals, 008 Outfall Response (previously cited).

205 TCEQ, “Mobile air monitoring vans: Summary of survey results”, 6 May 2023, <https://www.tceq.texas.gov/downloads/response/shell-pemex/data3.pdf>

206 Texas Tribune, “Shell refinery unit in Deer Park had history of malfunctions before fire”, 10 May 2023, <https://www.texastribune.org/2023/05/10/texas-shell-refinery-fire-problems-tceq/>

207 TCEQ, “Shell fire, Deer Park”, May 2023, <https://www.tceq.texas.gov/response/shell-pemex-deer-park>

208 Texas Tribune, “Shell refinery unit in Deer Park had history of malfunctions before fire” (previously cited).

209 WHO, *Exposure to Benzene: a major public health concern*, 2019, <https://www.who.int/publications/i/item/WHO-CED-PHE-EPE-19.4.2>

210 TCEQ, “Shell fire, Deer Park” (previously cited).

211 TCEQ, “Air Emission Event Report Database Incident 400010”, 8 September 2023, <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=400010>

212 EPA letter to Amnesty International, 21 November 2023. See full letter in Annex 2.

213 Wall Street Journal, “Texas sues Shell over massive fire at Houston Chemical Plant”, 13 August 2023, <https://www.wsj.com/articles/texas-sues-shell-over-massive-fire-at-houston-chemical-plant-9dd217d1>

In addition to the risks that chemical disasters pose to the health and lives of fenceline communities and plant workers, they can also cause damage to people's properties. Five fenceline community members interviewed by Amnesty International report experiencing damage to their homes, which they attribute to ground vibration from explosions and other incidents at nearby petrochemical plants. This damage included cracks to windows, damage to window frames from rattling and cracks in walls and ceilings.

🔍 CASE STUDY



Evacuated ExxonMobil workers observe the fire that followed an explosion on 31 July 2019 from the Baytown Olefins Plant entrance in Baytown. Officials confirmed 66 employees and contractors were sent for medical evaluation following the incident. © 2019 Houston Chronicle via Getty Images (Photographer: Yi-Chin Lee)

RESIDENTS AND WORKERS HARMED BY 'BLASTS' AT EXXONMOBIL BAYTOWN

On 23 December 2021, residents in Baytown report hearing an explosion before a fire broke out at the ExxonMobil Baytown refinery.²¹⁴ The incident injured at least four contract workers on site.²¹⁵ According to a lawsuit filed on behalf of two of the workers, they suffered head injuries, major orthopaedic injury to their spines and were burned all over their bodies, while one worker suffered a broken leg.²¹⁶ ExxonMobil described the incident as a fire, however interviewees said they felt their houses shaking and heard roaring sounds from what sounded like a "blast".²¹⁷ "Josephine" lives close to the plant and recalled: "it woke me up and blew me out of my bed... it scared me. It really scared me."²¹⁸ Since the incident she keeps her purse and keys beside her bed, "in case there's another explosion."

214 Interviews with community members.

215 ExxonMobil Baytown Area, Twitter post, 24 December 2021, <https://twitter.com/exxonmobil/status/1474204936812515328>; Reuters, "Four injured in fire at Exxon's Baytown, Texas, oil refinery", 23 December 2021, <https://www.reuters.com/world/us/some-injuries-after-fire-exxons-baytown-texas-facility-2021-12-23/>

216 Houston Public Media, "2 injured workers file \$10 million lawsuit against ExxonMobil after Baytown refinery explosion", 27 December 2021, <https://www.houstonpublicmedia.org/articles/news/energy-environment/2021/12/27/416341/2-injured-workers-file-10-million-lawsuit-against-exxonmobil-after-baytown-refinery-explosion/>

217 Interviews with community members.

218 Interview in person with "Josephine" (not her real name), community member, 13 May 2023, Baytown, Texas.

CASE STUDY (continued)

Michael Szumski also lives near the ExxonMobil Baytown Complex and said the blast caused damage to his home.²¹⁹ While Amnesty International cannot verify the cause of the damage, researchers observed cracks in the walls and ceiling of Michael's property and garage and reviewed photographic documentation – including photos taken on 15 December 2021 and photos taken shortly after the incident that clearly show additional damage. ExxonMobil denies responsibility for the damage. In a letter to Michael's then legal representative, the company said Michael would need to provide “additional scientific and/or engineering data” to prove his claims.²²⁰

A couple of years earlier, on 31 July 2019, residents experienced another “blast” from an explosion at the ExxonMobil Baytown Olefins plant. A shelter-in-place advisory was ordered and lifted on the same day. In a statement, Harris County officials confirmed ExxonMobil had reported 66 employees and contractors were sent for “medical evaluation”.²²¹ In February 2023, a jury awarded US\$28,951,000 to five plant workers that were injured during the incident.²²² According to the law firm that represented the workers, the explosion created a “fireball that measured approximately 900 feet tall, making it one of the largest industrial explosions ever seen on the Texas gulf coast.”²²³

Facilities that make, use or distribute extremely hazardous substances are required by the EPA's Risk Management Program Rule to develop a Risk Management Plan, which must be revised and resubmitted to the EPA every five years.²²⁴ This requires facilities to identify the potential effects of a chemical accident, steps being taken to prevent an accident and emergency response procedures. Facilities must also conduct offsite consequence analysis (OCA), which involves calculating the maximum possible radius where people could be harmed by a worst-case release of a hazardous substance. The EPA classifies areas that could be affected by a release from a chemical accident at a facility as “vulnerable zones”; the radius of these zones can differ, depending on the types and quantities of chemicals being handled.²²⁵

Risk Management Plan information can only be accessed by the public via the Federal Reading Rooms (facilities that provide members of the public with “read-only” access to paper copies of particular documents), while Risk Management Plan information without the OCA is available only on request.²²⁶ Amnesty International reviewed the Risk Management Plans of the four petrochemical companies subject to this research via a request made to the EPA under the Freedom of Information Act, in addition to reviewing OCA information at a Federal Reading Room. While it is not permitted to copy and share any OCA information, Amnesty International's analysis of the OCA information

219 Interview in person with Michael Szumski, community member, 5 May 2023, Baytown, Texas.

220 ExxonMobil, Letter to Lone Star Legal Aid, 11 June 2021 (photo of letter on file).

221 Harris County Office of Homeland Security and Emergency Management, Twitter post, “Baytown fire update”, 31 July 2019, <https://twitter.com/ReadyHarris/status/1156694968808988672/photo/1>

222 Mycah Hatfield, “2019 Baytown ExxonMobil explosion victim feels only ‘some’ relief after nearly \$30M verdict”, 22 February 2023, ABC13 Eyewitness News, <https://abc13.com/exxonmobil-explosion-baytown-2019-chemical-plant-olefins/12856110/>

223 Abraham Watkins, “Abraham Watkins obtains a \$28,591,000 verdict against ExxonMobil for Baytown 2019 chemical plant explosion”, 21 February 2023, <https://www.abrahamwatkins.com/firm-news/abraham-watkins-obtains-a-28591000-00-verdict-against-exxonmobil-for-baytown-2019-chemical-plant-explosion/>

224 EPA, “Risk Management Program (RMP) Rule”, <https://www.epa.gov/rmp> (accessed 23 July 2023).

225 EPA, “Vulnerable Zone Determination”, <https://www.epa.gov/rmp/vulnerable-zone-determination> (accessed on 12 September 2023).

226 EPA, “Federal Reading Rooms for Risk Management Plans (RMP)”, <https://www.epa.gov/rmp/federal-reading-rooms-risk-management-plans-rmp> (accessed 7 August 2023).

submitted by the four facilities shows they have identified that up to hundreds of thousands of people, as well as schools, hospitals, prisons, offices and recreational areas could be harmed in the event of a worst-case toxic release.

6.3 THE RIGHT TO HEALTH

“My mom, she recently had uterine cancer. A lot of people have cancer, breathing difficulties. Maybe it’s just life, but you live where you live – it makes you wonder. Who is actually going to say it? The doctor can’t tell you, ‘you got this cancer because you live next to this plant.’ But there’s no way living right next to them is good. It isn’t.”²²⁷

“James”, a community member

The right to the enjoyment of the highest attainable standard of physical and mental health, also known as the right to health, is a fundamental human right.²²⁸ Pollutants produced by the petrochemical industry are known to increase the risk of a range of adverse health impacts. According to the USA Centers for Disease Control and Prevention (CDC), PM_{2.5} has negative health implications at even very low concentrations and can cause eye irritation, lung and throat irritation, lung cancer and birth risks, such as low birth weight.²²⁹ It can also create additional risks for people with existing cardiovascular disease, such as heart attacks and chest pain. VOCs emitted by the industry, such as benzene and 1,3-butadiene, are human carcinogens – long-term exposure increases the risk of leukaemia and other types of blood cancers, while short-term exposure causes irritation to the respiratory tract and eyes, skin irritation, drowsiness, dizziness, elevated heart rates, headaches, nausea, and shortness of breath. Ground-level ozone, produced by the atmospheric interaction of a mix of air pollutants emitted by the petrochemical industry, including methane and nitrogen oxides, increases rates of asthma and chronic respiratory illness, as well as other breathing problems and reduced lung function.²³⁰ The following table outlines some of the common pollutants produced in the manufacture of petrochemicals and the human health effects caused by exposure.

227 Interview in person with “James” (not his real name), community member, 9 May 2023, Baytown, Texas.

228 ICESCR, Article 12(1).

229 CDC, “Particle pollution”, https://www.cdc.gov/air/particulate_matter.html (accessed on 22 July 2023).

230 WHO, “Urban green spaces”, <https://www.who.int/initiatives/urban-health-initiative/health-impacts/other-health-risks> (accessed on 21 July 2023).

Petrochemical pollutants and their health impacts



Health effects of PM_{2.5}

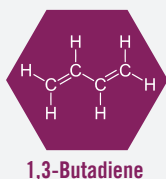
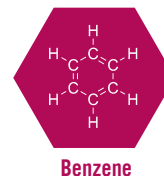
Eye irritation; lung and throat irritation; trouble breathing; lung cancer; problems with babies at birth (for example, low birth weight).

It can create additional risks for people with existing cardiovascular disease, such as heart attacks and chest pain.²³¹

Health effects of Benzene

Short-term exposure: irritation to the respiratory tract and eyes; skin irritation; drowsiness; dizziness; elevated heart rate; headaches; nausea; shortness of breath.

Long-term exposure: blood cancers such as leukaemia and lymphoma.²³²



Health effects of 1,3-Butadiene

Short-term exposure: Irritation of the eyes, nose, throat and lungs.

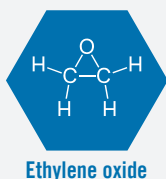
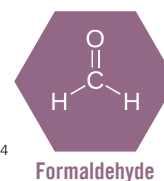
Long-term exposure: elevated rates of leukaemia in children; increased risk of cardiovascular diseases.²³³

Health effects of Formaldehyde

Low-level exposure may cause irritation to eyes, nose, throat, airways and skin.

Some groups are more sensitive to the effects of formaldehyde, such as the very young, older people, people with asthma and other respiratory issues.

Chronic exposure to high levels has been linked to rare nose and throat cancers in workers.²³⁴



Health effects of Ethylene oxide

Exposure can cause headaches; breathing difficulties; tiredness; vomiting; diarrhoea; eye and skin burns; reproductive problems.²³⁵

Health effects of Nitrous oxides

Low levels can irritate the eyes, nose, throat and lungs, and cause coughs, shortness of breath, tiredness and nausea. More than a day of exposure can lead to fluid build-up in the lungs.²³⁶



Health effects of Ground-level ozone

Increases rates of asthma and chronic respiratory illness, as well as other sorts of breathing problems and reduced lung function.²³⁷

231 CDC, "Particle Pollution", https://www.cdc.gov/air/particulate_matter.html (accessed on 22 July 2023).

232 IARC, *IARC Monographs on the Identification of Carcinogenic Hazards to Humans*, 2018, Volume 120, <https://monographs.iarc.who.int/wp-content/uploads/2018/06/mono100F-24.pdf>, pp. 290-291.

233 Agency for Toxic Substances and Disease Registry, "Public Health Statement for 1,3-Butadiene", March 2011, <https://wwwn.cdc.gov/TSP/PHS/PHS.aspx?phsid=457&toxid=81>

234 Agency for Toxic Substances and Disease Registry, "Formaldehyde and your health", <https://www.atsdr.cdc.gov/formaldehyde> (accessed on 21 July 2023).

235 CDC, "Ethylene Oxide", <https://www.cdc.gov/niosh/topics/ethyleneoxide/default.html> (accessed on 22 July 2023).

236 ATSDR, "ToxFAQs™ for Nitrogen Oxides", <https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=396&toxid=69> (accessed on 21 July 2023).

237 WHO, "Urban green spaces" (previously cited).



Juan Flores (on the right) and his family live in Galena Park, a fenceline community along the Houston Ship Channel.
© Image provided by the family.

Long-term exposure to environmental noise can also harm human health. Health risks include cardiovascular disease, sleep disturbance, hearing impairment and cognitive impairment; there is also increasing evidence for other health risks such as adverse birth outcomes and mental health problems.²³⁸

While it can be difficult to pinpoint a single environmental exposure that is the cause of an individual's disease, there have been several studies that show the risks to health associated with exposure to pollutants emitted by the petrochemical industry, as the following sections will demonstrate. Workers in the petrochemical industry are also likely to have increased risk of long-term exposure to these pollutants, particularly those who also live in fenceline communities. Barriers to diagnosis and accessing healthcare services mean that several residents who reported health conditions to Amnesty International had not received a formal diagnosis. Even when residents do seek medical help, often public health authorities do not systematically track enough information to connect the environmental factors – such as living close by to polluting industry – that may be causing or contributing to their illness.

Residents reported a range of adverse health outcomes they believe are likely linked to petrochemical pollutants due to their proximity to industry. Amnesty International researchers also recorded many narratives of health effects believed to have been linked to the petrochemical industry, affecting entire families and spanning generations. For example, Juan Flores has lived in Galena Park, a predominantly Hispanic neighbourhood along the Ship Channel, for 45 years. His daughter, Dominique, now aged seven, was born with a malignant tumour on her kidney that required chemotherapy and multiple surgeries.²³⁹ Juan's father died from a heart attack at the age of 51, after working in the petrochemical industry for decades. Last year, Juan was diagnosed with monoclonal gammopathy of undetermined significance (MGUS), a blood condition that affects plasma cells and increases a person's risk of developing some blood cancers, including multiple myeloma. After reviewing his family's medical history, Juan's oncologist suspects it was likely caused by environmental factors, such as exposure to benzene.²⁴⁰ Juan told Amnesty International: "When I think about it, sometimes it gets to me. Damn, I have to live with this for the rest of my life. My wife worries about it, my kids worry about it... I have to leave eventually. All my siblings left, they're saying 'we told you'. How was I supposed to know it was going to get me this bad?"²⁴¹

238 WHO, *Compendium of WHO and other UN guidance on health and environment: 2022 update*, 2022. UN Doc. WHO/HEP/ECH/EHD/22.01, p. 149.

239 Agency for Toxic Substances and Disease Registry, "Public Health Statement for 1,3-Butadiene", March 2011, <https://www.cdc.gov/TSP/PHS/PHS.aspx?phsid=457&toxid=81>

240 Interview in person with Juan Flores, community member and professional advocate, 3 May 2023, Baytown, Texas.

241 Interview in person with Juan Flores, community member and professional advocate, 3 May 2023, Baytown, Texas.

RESPIRATORY AND CARDIOVASCULAR DISEASE

Over half – 15 out of 29 – of the community members who were interviewed reported that they or a close relative had been diagnosed with a respiratory disease, such as asthma and lung cancer, had a chronic cough or frequently experienced breathing difficulties. Stephany Valdez moved to Baytown around six years ago. Then aged 19, she noticed a worsening of her asthma symptoms almost immediately.²⁴² Stephany says she finds it harder to breathe since moving to Baytown, especially when nearby plants are flaring. As a result, she has increased the number and types of medications to treat her symptoms. She said: “I think it’s something specific to Baytown... when you drive out, you feel the difference in the air, it smells crisper, it’s easier to breathe. As soon as you get back... I’ll have trouble breathing and things like that.”²⁴³

“Vincent” (not his real name) lives and grew up in Baytown. As a child he spent a lot of time playing outdoors. “It’s a concern of mine, I was out there, breathing this stuff”, he said. “I’m 55, we’ll see how it ends up going for me. I have a bit of a chronic cough these days... I haven’t been a smoker. It makes me wonder why I have this cough that won’t seem to let up. I have a friend who, 5-6 years ago died of lung cancer, having never been a smoker. He was 46 at the time. How do you explain that?”²⁴⁴ According to the CDC, only about 10% to 20% of lung cancers every year occur in non-smokers and one of the risk factors is exposure to air pollution.²⁴⁵

Many of these symptoms were confirmed by William Perkison, a board-certified medical doctor practicing in the Houston area, as common effects of exposure to large volumes of petrochemical pollution – such as during unplanned releases – on fenceline communities:

“In general, the main effects would be respiratory effects, causing irritation of the upper airways, irritant asthma, watery eyes, cough. These are the short-term acute effects of respiratory disease. People with underlying pulmonary issues [such as] COPD (chronic obstructive pulmonary disease), asthma – they will be significantly affected. They issue things like shelter-in-place (stay inside), it’s not 100% effective as air still gets inside the home.”²⁴⁶

Cardiovascular disease is also a risk faced by fenceline communities. Molly Cook, an emergency room nurse at a hospital in Houston, told Amnesty International she sees “a lot of strokes [and] a lot of heart attacks”.²⁴⁷ When asked, these patients often inform Molly that they live in communities adjacent to industry. The chief environmental science officer for the Houston Health Department, Loren Hopkins, outlined the health risks faced by fenceline neighbourhoods along the Houston Ship Channel to Public Health Watch: “So these neighbourhoods in particular have six times the rate of ambulance treated asthma attacks as the rest of Houston and they have two times the rate of cardiac arrest. So, we all know that pollution is a trigger for both of those.”²⁴⁸

242 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

243 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

244 Interview in person with “Vincent” (not his real name), community member, 5 May 2023, Baytown, Texas.

245 CDC, “Lung cancer among people who never smoked”, 31 July 2023, <https://www.cdc.gov/cancer/lung/nonsmokers/>

246 Interview by video call with William Perkison, a board certified occupational and environmental medicine specialist, practicing in the Houston area, 28 March 2023.

247 Interview in person with Molly Cook, emergency room nurse and advocate, Houston, Texas, 8 May 2023.

248 Loren Hopkins, Chief Environmental Science Officer for the Houston Health Department, as quoted in Public Health Watch, “Smells Like”, 2 June 2022, <https://publichealthwatch.org/2022/06/02/smells-like-harris-county-texas-pollution-refineries/>



Emergency crews extinguishing the petrochemical tank fire at ITC Deer Park with firefighting foam. The fire began on 17 March 2019 and lasted over three days. © 2019 Houston Chronicle via Getty Images (Photographer: Brett Coomer)

ADVERSE HEALTH IMPACTS LINKED TO ITC DEER PARK FIRE

On 17 March 2019, a large fire broke out at ITC Deer Park following equipment failure at a storage tank.²⁴⁹ Lasting for over three days, the fire spread to nine additional tanks and sent a cloud of black smoke over the region so vast that the National Weather Service tracked it for weeks.²⁵⁰ On 22 March, part of ITC's dyke wall failed, causing a spill of chemicals into surrounding waterways, including the Ship Channel.

An initial shelter-in-place advisory for Deer Park remained in place for 18 hours. A second advisory was issued three days later due to air monitoring reports of benzene and other VOCs within the city limits.²⁵¹ Almost 1,000 people attended temporary mobile health clinics in Deer Park that operated for three days after the fire started, and the Texas Poison Center Network received almost 200 calls reporting chemical exposure in the fire's aftermath.²⁵² Amnesty International documented concerns from several residents in Deer Park and surrounding areas who experienced difficulties breathing, headaches and irritation of the throat and eyes and spoke to a medical doctor who treated patients in the aftermath of the ITC fire.

249 U.S. Chemical Safety and Hazard Investigation Board, "Storage tank fire at Intercontinental Terminals Company, LLC (ITC) Terminal: Factual update", 30 October 2019, https://www.csb.gov/assets/1/20/itc_factual_update_2019-10-30.pdf

250 Texas Tribune, "Houston-area chemical fire highlights gaps in Texas environmental enforcement", 15 May 2023, <https://www.texastribune.org/2023/05/15/texas-itc-shell-chemical-plant-fire-tceq-permit-hearing/>

251 U.S. Chemical Safety and Hazard Investigation Board, "Storage Tank Fire at ITC" (previously cited), p. 14.

252 Texas Tribune, "Toxic benzene lingered for weeks after shelter-in-place warnings ended following 2019 Houston-area chemical fire", 27 April 2023, <https://www.texastribune.org/2023/04/27/texas-chemical-plant-fire-itc-deer-park-benzene/>

CASE STUDY (continued)

When news of the fire first broke out, “Hazel” (not her real name), rushed to evacuate with her children. As a registered nurse she was aware of the potential risks to her family’s health and recalls struggling to breathe. Upon leaving the house, “Hazel” covered her children’s faces with wet rags to try and stop them inhaling chemicals. She said:

“We didn’t know if we were breathing poison, what the long-term effects were. They were beginning to close the roads around us, so we had to quickly make a decision to leave our home. We had to shut off all our air-conditioning units, place towels underneath all our doors... We were lucky we were able to evacuate, a lot of people didn’t have that luxury.”²⁵³

Five days later, after authorities had lifted the public health measures, “Hazel”, like many others, returned, believing it was safe to do so. However recent analysis of EPA air monitoring data by the Texas Tribune shows benzene in the air spiked to high and potentially dangerous levels, including in residential areas, for more than two weeks after the second shelter-in-place advisory expired.²⁵⁴ The public were not warned about these potentially unsafe benzene levels.

Patricia Gonzales lives in Pasadena, where residents were not advised to shelter-in-place during the fire. Unaware of the health risks and need to stay inside, she continued running errands and recalled seeing “this plume of smoke going over us”.²⁵⁵ At the grocery store her asthma symptoms began to worsen. She said: “I didn’t think that was right... my eyes were burning, [I had] an itchy throat, I was getting a headache. That evening I had to go to the aftercare doctor to give me meds for my asthma and allergies because my eyes were burning so much. I was having problems breathing [and] feeling sick.”²⁵⁶

ELEVATED CANCER RISKS

Fenceline communities along the Houston Ship Channel face elevated risks of cancer linked to petrochemical and other industrial pollution sources. One community member told Amnesty International that nearly every household on their street had been impacted by a cancer diagnosis.²⁵⁷ According to Loren Hopkins, chief environmental science officer for the Houston Health Department: “There are two pollutants that are a big concern in Houston in terms of cancer. One of the pollutants is benzene and the other one is 1-3 butadiene... We really don’t know what happens when a person breathes both of them, together. Whether the risk is additive, whether it’s multiplicative, you know, how they affect each other.”²⁵⁸

253 Interview by voice call with “Hazel” (not her real name), community member, 19 May 2023.

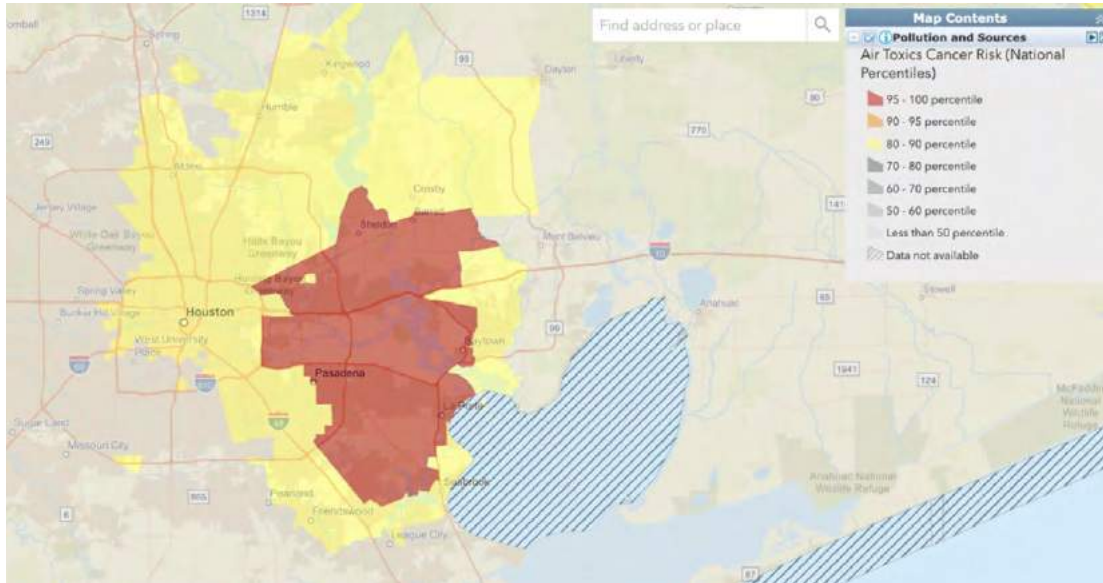
254 Texas Tribune, “Toxic benzene lingered for weeks after shelter-in-place warnings ended following 2019 Houston-area chemical fire”, (previously cited).

255 Interview in person with Patricia Gonzales, community member and professional advocate, 9 May 2023, Pasadena, Texas.

256 Interview in person with Patricia Gonzales, community member and professional advocate, 9 May 2023, Pasadena, Texas.

257 Interview in person with “Gladys” (not her real name), community member, 9 May 2023, Smith Addition, Houston.

258 Loren Hopkins, Chief Environmental Science Officer for the Houston Health Department, as quoted in Public Health Watch, “Smells Like”, 2 June 2022, <https://publichealthwatch.org/2022/06/02/smells-like-harris-county-texas-pollution-refineries/>



EPA EJScreen data shows neighbourhoods along the Houston Ship Channel's petrochemical corridor have an air toxics cancer risk in the 95th percentile relative to the national average.²⁵⁹

Analysis of EPA data by investigative journalists at ProPublica found that large swaths of greater Houston make up the third largest hotspot for cancer-causing air pollution in the USA.²⁶⁰ Cancer risks from industrial pollution can be compounded by other factors, such as age, diet and genetics. However, scientific studies lend credence to residents' concerns about exposure to air pollution and cancer. The Texas Department of State Health Services has identified cancer clusters in several neighbourhoods in Houston and East Harris County, where cancer rates are higher than the rest of the state.²⁶¹ A University of Texas School of Public Health study also found elevated rates of all types of childhood leukaemia in areas in the greater Houston area with the highest ambient levels of benzene and 1,3-butadiene, compared with census tracts with the lowest levels of these chemicals. This study adjusted for community socio-economic status and other factors, attempting to isolate the impact of pollution from diet and other contributors to cancer risk.²⁶² Using the ProPublica mapping tool to focus on the three petrochemical producing complexes included in this report reveals how these facilities could be contributing to excess cancer risks that are higher than TCEQ and EPA target risk levels in neighbouring communities.²⁶³

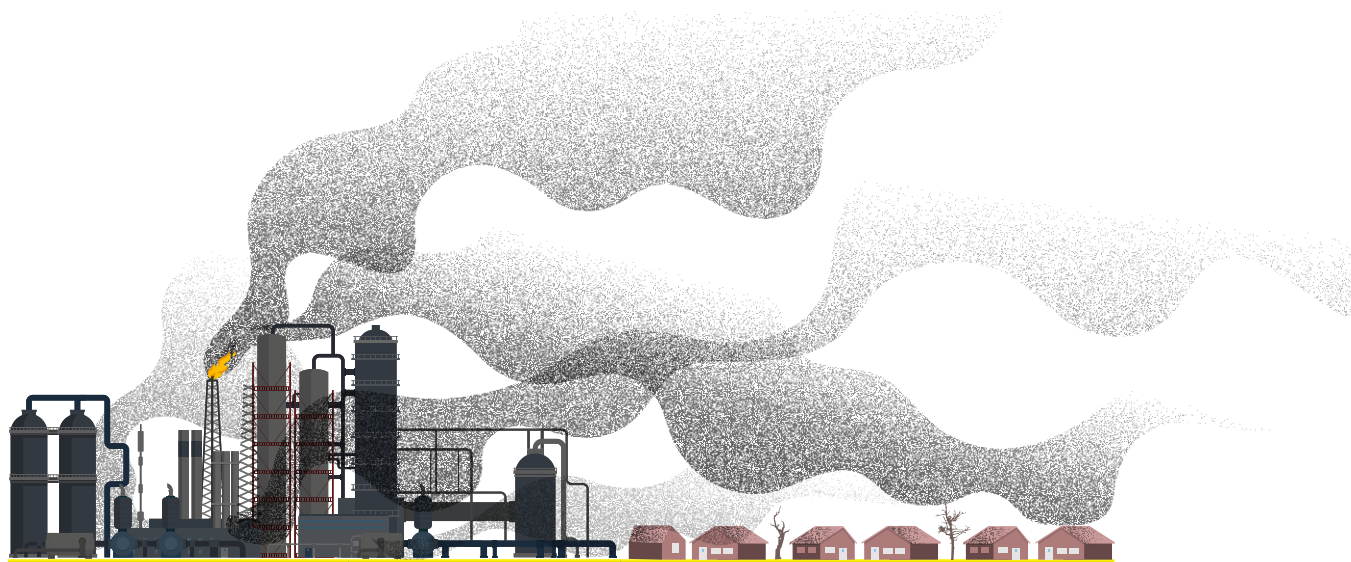
259 EPA EJScreen, "EPA's Environmental Justice Screening and Mapping Tool", <https://ejscreen.epa.gov/mapper/> (accessed on 8 August 2023).

260 ProPublica, "Sacrifice zones: Mapping cancer-causing industrial air pollution", 2 November 2021, <https://www.propublica.org/series/sacrifice-zones>

261 Texas Department of State Health Services, *Assessment of the Occurrence of Cancer East Harris County, Texas, 1995-2012*, 19 June 2015, <https://s3.documentcloud.org/documents/2107698/assessment-finds-elevated-cancer-rates-in-parts.pdf>; Texas Department of State Health Services, *Assessment of the Occurrence of Cancer, Houston, Texas*, 13 August 2019, <https://www.dshs.texas.gov/sites/default/files/epitox/reports/Assessment-of-the-occurrence-of-cancer-Houston-2000-2016-Report.pdf>

262 Kristina W. Whitworth and others, "Childhood lymphohematopoietic cancer incidence and hazardous air pollutants in southeast Texas, 1995-2004" (previously cited).

263 ProPublica's analysis is based on five years of modeled EPA data, including emissions data from facilities that report to the EPA's Toxic Release Inventory Database. ITC Deer Park is not required to report to the EPA's Toxic Release Inventory database and is not included in the ProPublica analysis. See: ProPublica, "How we created the most detailed map ever of cancer-causing industrial air pollution", 2 November 2021, <https://www.propublica.org/article/how-we-created-the-most-detailed-map-ever-of-cancer-causing-industrial-air-pollution>



Facility	Pollutants emitted	Health impacts
ExxonMobil Baytown Complex (ExxonMobil Chemical Plant)	Emits 1,3-butadiene, nickel compounds, formaldehyde and seven more carcinogens	Fenceline communities face an estimated excess lifetime cancer risk from industrial pollution of about 1 in 3,500 , or 2.8 times the EPA's acceptable risk; ExxonMobil Baytown Olefins Plant contributes about 85.2% of the estimated excess cancer risk, while ExxonMobil's Baytown Refinery and Chemical Plant contribute an additional 3% and 1.7%, respectively.
LyondellBasell Channelview Complex	Emits ethylene oxide, 1-3, butadiene, benzene and eight more carcinogens	Fenceline communities face an estimated excess lifetime cancer risk from industrial pollution of about 1 in 460 , or 22 times the EPA's acceptable risk; Lyondell Chemical Company contributes about 98.6% of the estimated excess cancer risk.
Shell Deer Park Chemicals	Emits 1-3, butadiene, benzene, epichlorohydrin and nine more carcinogens	Fenceline communities face an estimated excess lifetime cancer risk from industrial pollution of about 1 in 930 , or 11 times the EPA's acceptable risk; Shell Chemical LP contributes about 93.4% of the estimated excess cancer risk.

Source: ProPublica, "The Most Detailed Map of Cancer-Causing Industrial Air Pollution in the U.S.", 15 March 2022, <https://projects.propublica.org/toxmap/>. ProPublica used data from EPA's Risk-Screening Environmental Indicators model to compute cumulative cancer risk estimates in the air around industrial facilities.

BARRIERS TO DIAGNOSIS

While many of the interviewees had received a diagnosis from a medical professional, fenceline community members in the areas Amnesty International visited can be reluctant to visit a medical professional, due to cultural barriers, prohibitive costs and anxiety over the risks to health from living alongside industry. Carolyn Stone, a community member and advocate, said: “I would be scared to go to the doctor... Lots of people, not just me, it’s better not to know.”²⁶⁴

Since moving to Channelview, Alondra Torres suffers from frequent headaches and gets easily winded but has not been to see a doctor.²⁶⁵ Alondra explained: “I’m Mexican. In general, marginalized communities and low-income communities don’t really visit the doctor, because that’s just not the way you grow up.” She went on to say: “You only go to the doctor when it’s a life-threatening situation or when you’re about to die. You just don’t go for small things.” An advocate and organizer, Alondra engages her community on environmental justice issues. She said: “I’ve spoken to my neighbours... about their health concerns. They have said the same thing. The time when they figure out that their health has been compromised by air pollution is when they’ve been diagnosed with cancer and it’s like, too late.”²⁶⁶

UNAFFORDABLE HEALTHCARE

Healthcare in the USA is rarely free and those needing treatment will usually have to pay something towards the cost. Access to healthcare is fragmented: some people have private health insurance, others are covered by government-supported health insurance (such as Medicare and Medicaid), and some do not have any insurance. Government health insurance programmes and private insurance plans usually involve some form of cost sharing.²⁶⁷ Four in ten adults in the USA report having healthcare debt, according to a study by non-profit organization KFF, which can have significant financial consequences and contribute to bankruptcy, home foreclosures and evictions.²⁶⁸ The same study found that one in seven people with healthcare debt say they have been denied care at a hospital, doctor or other provider because of unpaid bills.²⁶⁹ A study comparing the performance of healthcare systems of 11 high-income countries ranked the USA as last on access to care, equity and healthcare outcomes.²⁷⁰

Texas has the highest percentage (18%) and number of people in the USA without health insurance, with approximately five million people uninsured.²⁷¹ Reasons for being uninsured include the cost of insurance, the decision by Texas not to expand Medicaid and a lack of information about enrolment. Undocumented migrants and their children are also less likely to be insured.²⁷² People who are uninsured are most vulnerable to exorbitant healthcare costs and more likely to refrain from accessing healthcare.²⁷³

264 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

265 Interview by video call with Alondra Torres, community member and professional advocate at Air Alliance Houston, 11 May 2023.

266 Interview by video call with Alondra Torres, community member and professional advocate at Air Alliance Houston, 11 May 2023.

267 Amnesty International, *Scars of Survival: Gun Violence and Barriers to Reparation in the USA* (Index: AMR 51/0566/2019), 11 July 2019, <https://www.amnesty.org/en/documents/amr51/0566/2019/en/>, p. 28.

268 KFF, “Health care debt in the U.S.: The broad consequences of medical and dental bills”, 16 June 2022, <https://www.kff.org/report-section/kff-health-care-debt-survey-main-findings/>

269 KFF, “Health Care Debt in the U.S.” (previously cited).

270 The Commonwealth Fund, *Mirror, Mirror 2021: Reflecting Poorly, Health Care in the U.S. Compared to Other High-Income Countries*, 4 August 2021, <https://www.commonwealthfund.org/publications/fund-reports/2021/aug/mirror-mirror-2021-reflecting-poorly>

271 Texas 2036, *Uninsured Texans: Data, Research and Policy*, 2022, <https://texas2036.org/wp-content/uploads/2022/10/TX2036-Preliminary-Report-on-Uninsured.pdf>

272 KFF, “Health coverage and care of immigrants”, 20 December 2022, <https://www.kff.org/racial-equity-and-health-policy/fact-sheet/health-coverage-and-care-of-immigrants/>

273 Amnesty International, *Scars of Survival* (previously cited), p. 28.

6.3.1 NON-DISCRIMINATION AND HEALTH

The right to health must be enjoyed without discrimination on the grounds of race, age, ethnicity or any other factor.²⁷⁴ However, racism and racial discrimination are key determinants of health outcomes and the enjoyment of the right to health.²⁷⁵ Structural racism and inequities mean that fenceline communities are more likely to have higher rates of pre-existing health conditions, such as cardiovascular disease, diabetes, lung disease and other respiratory issues such that exposure to pollutants can be especially harmful. Moreover, within these communities, people who work outdoors, children, older people, and women may face higher likelihood of harm for physiological reasons.²⁷⁶ This section examines how these disparities are experienced by residents living alongside industry in the region.

RACIALIZED PERSONS

Environmental racism along the Houston Ship Channel drives health disparities among communities disproportionately comprised of racialized people. Compounding this disparity further, people subject to racism face multiple barriers in accessing timely and quality healthcare.²⁷⁷ Often, these barriers are the result of structural racism and other types of discrimination and marginalization, such as those based on gender, sexuality, income, migration status, employment-status, and presence of a health condition or disability. This is true in the US context, where the absence of universal healthcare and large income inequality means many people struggle to access healthcare, particularly those with lower incomes, racialized people and undocumented migrants and their children.²⁷⁸

“Living out here, that’s just the way of life, you’re used to things like [chemical releases], nobody never tells you it’s harmful or anything... I was diagnosed with lung cancer, seven years ago. And I spent a lot of time outdoors. You smell stuff, oh, but I’m used to smelling it. We have so many people in our neighbourhood that died of cancer... My husband died of bone cancer, yeah, multiple myeloma, and he worked at a chemical plant... It was ignorance, when you don’t know, you don’t know.”²⁷⁹

“Phyllis” (not her real name), lives in a predominantly Black and African American fenceline community along the Houston Ship Channel

274 ICESCR, Article 12(1); ICERD, Article 5(e)(iv).

275 Special Rapporteur on the Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health (Special Rapporteur on the right to health), Report: *Right of everyone to the enjoyment of the highest attainable standard of physical and mental health*, 20 July 2022, UN Doc. A/77/197, para. 7; CERD, First Draft General Recommendation 37 (2023) on Racial discrimination in the enjoyment of the right to health, 12 May 2023, UN Doc. CERD/C/GC/R.37, paras 2 and 3; WHO Commission on Social Determinants of Health, *Closing the Gap in a Generation*, 2008, https://iris.who.int/bitstream/handle/10665/43943/9789241563703_eng.pdf

276 American Lung Association, “Who is at risk? Some groups of people face greater risk from air pollution”, <https://www.lung.org/clean-air/outdoors/who-is-at-risk#:~:text=People%20who%20work%20or%20exercise,other%20places%20in%20a%20community> (accessed on 30 June 2023).

277 Amnesty International, *Racism and the Right to Health: Preliminary Observations on the Draft General Recommendation 37 by the Committee on the Elimination of Racial Discrimination* (Index: IOR 40/5785/2022), 30 June 2022, p. 5.

278 The Commonwealth Fund, *Mirror, Mirror 2021: Reflecting Poorly: Health Care in the U.S. Compared to Other High-Income Countries*, 4 August 2021, <https://www.commonwealthfund.org/publications/fund-reports/2021/aug/mirror-mirror-2021-reflecting-poorly>; KFF, “Health Coverage by Race and Ethnicity, 2010-2021”, 20 December 2022, <https://www.kff.org/racial-equity-and-health-policy/issue-brief/health-coverage-by-race-and-ethnicity/>

279 Interview by phone with “Phyllis” (not her real name), community member, 24 May 2023. Community census information available here: <https://www.houstontx.gov/planning/Demographics/sn-profiles-2020/65.pdf>



Racialized community members told Amnesty International researchers that the differential exposures they face, and the lack of action by authorities to address them, was deliberate. As noted by the UN Special Rapporteur on the right to health, “residential segregation is a powerful predictor of health and well-being, since residents of communities in which public health services are inaccessible face higher rates of preterm birth, cancer, tuberculosis and depression.”²⁸⁰ An analysis of zip codes corresponding to health indicators demonstrates that those who live near the Houston Ship Channel – who are disproportionately lower-income and racialized people – can have up to 20 years of difference in life expectancy compared to those who live in western Houston (approximately 15 miles away), who are disproportionately affluent and white.²⁸¹ Some residents believe the authorities do not care about their exposure to petrochemical pollution because they belong to racialized communities. “Sade” (not her real name) said: “They don’t care, we’re minorities. That’s the truth. That’s why so many lives have been lost over the years.”²⁸²

Researchers at Rice University have found that Black and Latinx/Hispanic people in Houston are at a double disadvantage – not only do these groups tend to reside in more toxic areas than white people, but they also work in more toxic areas than white people, and therefore experience even higher levels of harmful pollution due to both residential and occupational exposures.²⁸³

WOMEN AND PEOPLE WHO HAVE THE CAPACITY TO BECOME PREGNANT

Women and all people who have the capacity to become pregnant are at risk of particular health harms linked to petrochemical pollution, especially those who face multiple and intersecting forms of discrimination and experience compounded health risk because of this.²⁸⁴ Studies have shown that industrial pollution can cause irregular menstrual cycles and infertility.²⁸⁵ Analysis of 45 peer-reviewed studies concluded that industrial air pollution is a significant risk factor for adverse birth outcomes, finding the strongest evidence is associations between air pollution from power plants and petrochemical industries and adverse birth outcomes.²⁸⁶ Interviewees disclosed to Amnesty International several adverse reproductive and maternal health outcomes affecting them and their relatives, including infertility diagnoses, inexplicable menstrual irregularity, pregnancy complications, premature births and birth defects.

280 Special Rapporteur on the right to health, Report, *Right of everyone to the enjoyment of the highest attainable standard of physical and mental health*, 20 July 2022, UN Doc. A/77/197, para. 26.

281 University of Texas Southwestern Medical Center, “New interactive map first to show life expectancy of Texans by ZIP code, race, and gender”, 27 February 2019, <https://www.utsouthwestern.edu/newsroom/articles/year-2019/life-expectancy-texas-zipcode.html>

282 Interview with “Sade” (not her real name), community member, 6 May 2023, Houston, Texas.

283 J. R. Elliot and K. T. Smiley, “Place, space, and racially unequal exposures to pollution at home and Work”, 2017, *Social Currents*, Volume 6, pp. 32-50.

284 Special Rapporteur on the right to health, Report: *Right of everyone to the enjoyment of the highest attainable standard of physical and mental health*, 20 July 2022, UN Doc. A/77/197, para. 15.

285 J. Carré, N. Gatimel and others, “Does air pollution play a role in infertility?: A systematic review”, 2017, *Environmental Health*, Volume 16, Issue 82, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5534122/>; W. Nicole, “On wells and wellness: Oil and gas flaring as a potential risk factor for preterm birth”, *Environmental Health Perspectives*, 2020, Volume 128, Issue 11, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7682589/>; Boston University Chobanian and Avedisian School of Medicine, “Air pollution linked to irregular menstrual cycles”, 2018, available at <https://www.bumc.bu.edu/camed/2018/01/25/air-pollution-linked-to-irregular-menstrual-cycles/>

286 T. Veber and others, “Industrial air pollution leads to adverse birth outcomes: A systemized review of different exposure metrics and health effects in newborns”, 2022, *Public Health Review*, Volume 43, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9400407/>

Pregnant people are more susceptible to air pollution-related diseases.²⁸⁷ Patricia Gonzales, the Founder of community group Caring for Pasadena Communities, first became aware of the health risks of living beside the petrochemical industry during her second pregnancy. She had recently moved to the Manchester neighbourhood. She recalled:

“My first pregnancy was great. But for the second, I had allergies, wheezing, trouble breathing. The doctors started asking me questions and looking at my medical history. They started putting two and two together, asking where I live, what I’m around. I told them, we have industry in our back yard. They told me it was best for health reasons to get out and move somewhere else... I was surprised [and] very upset when I found out that we lived in a neighbourhood that meant we were susceptible to our health being harmed. It shouldn’t matter that we’re low-income or minorities or people of colour. It shouldn’t be that we’re subjected to that.”²⁸⁸

CHILDREN

Air pollution is the greatest environmental risk to children’s health, due to their size, physiology, and behaviour.²⁸⁹ Exposure to environmental contaminants, such as those emitted by the petrochemical industry, has an impact on children’s health and development from conception through childhood, adolescence and early adulthood.²⁹⁰ At certain stages of development exposure to environmental toxicants can lead to irreversible damage; environmental pollution is a major contribution to childhood deaths, illness and disability. Studies have found that children living in close proximity to petrochemical plants have increased risk of leukaemia, respiratory disease, and neurodevelopmental effects.²⁹¹

Based on their physiology, children are particularly at risk from respiratory diseases caused and made worse by air pollution. William Perkison, an occupational and environmental medicine specialist, explained: “Children’s respiratory rates are faster than adults and they have less lung volume – this equates to over a period of time greater exposure to those air pollutants and they will cause more effects. One of the results is childhood asthma rates go up in heavily polluted areas.”²⁹²

Many of the fenceline community members interviewed by Amnesty International suffered from childhood asthma, or their children suffer from asthma. Maria Barraza and her then 10-year-old son moved to Galena Park in 2014. Almost “immediately” her son started to experience asthma attacks, although he had no history of asthma.²⁹³ She said: “He’d start wheezing and saying, “I can’t breathe”. At first it was constant. It was hard for me because he never before showed any signs.” She noticed his asthma attacks often coincided with the presence of strong odours in the neighbourhood.”²⁹⁴

287 WHO, “Air quality and health”, <https://www.who.int/teams/environment-climate-change-and-health/air-quality-and-health/health-impacts>

288 Interview in person with Patricia Gonzales, community member and professional advocate, 9 May 2023, Pasadena, Texas.

289 UNICEF, “Air pollution”, <https://www.unicef.org/parenting/air-pollution> (accessed on 7 November 2023).

290 WHO, “Children’s environmental health”, https://www.who.int/health-topics/children-environmental-health#tab=tab_1 (accessed 22 July 2023).

291 Kristina W. Whitworth and others, “Childhood lymphohematopoietic cancer incidence and hazardous air pollutants in southeast Texas” (previously cited); Fernando A Wichmann and others, “Increased asthma and respiratory symptoms in children exposed to petrochemical pollution”, *Journal of Allergy and Clinical Immunology*, 2009, Volume 123, Issue 3, available at <https://pubmed.ncbi.nlm.nih.gov/19111332/>; C. Huang and others, “Living proximity to petrochemical industries and the risk of attention-deficit/hyperactivity disorder in children”, 2012, *Environmental Research*, Volume 211, available at <https://www.sciencedirect.com/science/article/abs/pii/S0013935122004558#preview-section-introduction>

292 Interview by video call with William Perkison, a board certified occupational and environmental medicine specialist, practicing in the Houston area, 28 March 2023.

293 Interview in person with Maria Barraza, high school teacher and community member, 9 May 2023, Galena Park, Texas.

294 Interview in person with Maria Barraza, high school teacher and community member, 9 May 2023, Galena Park, Texas.



A park playground in Houston with a petrochemical plant in the background. © 2023 Amnesty International (Photographer: Lauren Murphy)

The Center for Effective Government used data from the EPA's Risk Management Program and school location data to determine that at least one in three US schoolchildren attend school within vulnerable zones of high-risk chemical facilities and therefore could be impacted by a release or explosion.²⁹⁵ San Jacinto Elementary in Deer Park was found to be the most at risk school in the country, within the vulnerable zones of 41 different facilities.²⁹⁶ The school is less than a mile and a half away from Shell Deer Park Chemicals. Over half (60%) of the children at San Jacinto Elementary belong to racialized groups and 41% are from low-income backgrounds.²⁹⁷

Amnesty International interviewed four teachers who live and work in fenceline communities along the Houston Ship Channel. They explained that children who attend the schools closer to petrochemical plants are typically from racialized communities and lower-income backgrounds.²⁹⁸ The children they teach often complain about odours in the classroom and experience nausea, headaches and eye and throat irritation.²⁹⁹ "Elena" (not her real name) teaches at a school close to the ExxonMobil Baytown Complex. Her students often experience chemical odours. She said, "it happens so many times I've lost count!"³⁰⁰ When the odours are bad at the Pasadena high school where Maria Barraza teaches, students are not allowed to eat lunch outside.³⁰¹

Petrochemical companies knowingly expose children to these health risks; they are directly responsible for releasing pollution and are required, by the EPA's Risk Management Program Rule, to identify populations, including schools, that could be harmed in worst-case and alternative release scenarios. When children experience headaches and irritation that affects their ability to concentrate, or have school absences due to illness, it not only harms their health but also undermines their right to education. School closures due to petrochemical industry upsets further undermine this right.

295 Center for Effective Government, *Kids in Danger Zones*, 30 September 2014, <https://www.foreffectivegov.org/blog/one-three-interactive-map-report-show-kids-danger-chemical-catastrophes>

296 Center for Effective Government, *Kids in Danger Zones*, 30 September 2014, <https://www.foreffectivegov.org/blog/one-three-interactive-map-report-show-kids-danger-chemical-catastrophes>

297 The Texas Tribune, "San Jacinto Elementary School" <https://schools.texastribune.org/districts/deer-park-isd/san-jacinto-elementary-school/> (accessed on 14 April 2023).

298 Interviews conducted by Amnesty International.

299 Interviews conducted by Amnesty International.

300 Interview with "Elena" (not her real name), high school teacher and community member, 5 May 2023, Baytown, Texas.

301 Interview in person with Maria Barraza, high school teacher and community member, 9 May 2023, Galena Park, Texas.

OLDER PERSONS

Older people are also disproportionately affected by air pollution, because as people age their bodies are less able to compensate for the effects of environmental hazards. Older people are also more likely to suffer from chronic diseases.³⁰² Even low levels of air pollution can increase the risk of cardiovascular and respiratory conditions – such as pneumonia, heart attack, stroke and atrial fibrillation – in older adults.³⁰³ There is also growing evidence that implicates air pollution as a risk factor for dementia in older adults.³⁰⁴

6.3.2 CUMULATIVE IMPACT OF POLLUTION

Fenceline communities are confronted by the cumulative impact of multiple sources of harmful industrial pollution in their neighbourhoods, including refineries, petrochemical manufacturers, concrete batch plants and metal recyclers. The petrochemical industry, along with its support infrastructure – from freight vehicles to trains, pipelines and port traffic – are significant sources of this pollution. Continued and repeated incidents of pollution and environmental damage caused by the petrochemical industry in the same area over time is significantly different from a one-off incident of pollution. The combined and cumulative impact of the petrochemical industry's practices, which amount to environmental racism, has significantly impaired the region's waterways and air quality, undermining the enjoyment of human rights, in particular the rights to health and to a healthy environment. The expansion of the petrochemical industry and its support infrastructure will only add further pollution to already overburdened communities.

6.3.3 GENETIC ALTERATIONS

There is growing evidence to suggest that many of the air toxics released by the petrochemical industry – such as benzene, 1-3 butadiene and ethylene oxide – are mutagenic, capable of inducing genetic changes in humans such as alternations to our DNA.³⁰⁵ Genetic mutations can have serious effects on human health and cause a wide range of diseases, cancer, birth defects and even reduced life expectancy.³⁰⁶ These changes can be passed on from parents to offspring, with the potential to have long lasting impacts across generations.

6.3.4 ADVERSE MENTAL HEALTH IMPACTS

Fenceline community members reported adverse impacts on their mental health because of their proximity to industry. The majority of interviewees said they felt anxious about the health impacts of petrochemical pollution and chemical disasters, as well as about the safety of friends and relatives who work in the industry. A constant looming threat, many people expressed feeling nervous or unease about the next chemical disaster. Community member, Carolyn, said: "I know at any moment, my house could be blown off the face of the earth. I mean, that's the reality we live with."³⁰⁷

302 EPA, "Climate change the health of older adults", <https://www.epa.gov/climateimpacts/climate-change-and-health-older-adults> (accessed on 12 August 2023).

303 Harvard T. H. Chan School of Public Health, "Even low levels of air pollution can harm hearts, lungs in elderly", 2021, available at <https://www.hsph.harvard.edu/news/hsph-in-the-news/even-low-levels-of-air-pollution-can-harm-hearts-lungs-in-elderly/>

304 Erin O. Semmens and others, "Air pollution and dementia in older adults in the ginkgo evaluation of memory study", 2023, *Alzheimer's and Dementia: The Journal of the Alzheimer's Association*, Volume 19, Issue 2, available at <https://doi.org/10.1002/alz.12654>

305 W. Chen and X. Zhang, "1-3 Butadiene: a ubiquitous environmental mutagen and its associations with diseases", 2022, *Genesis Environment*, Volume 44, Issue 3, available at <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8744311/>; V. Dellarco and others, "Review of the mutagenicity of ethylene oxide", 1990, *Environmental and Molecular Mutagenesis*, Volume 16, Issue 2, available at <https://doi.org/10.1002/em.2850160207>

306 UN Environment Programme and International Commission for Protection against Environmental Mutagens and Carcinogens, *Assessing the Risk of Genetic Damage*, 1992, <https://wedocs.unep.org/bitstream/handle/20.500.11822/29186/ATGD.pdf?sequence=1&isAllowed=y>

307 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

Patricia told Amnesty International: “I do feel worried because I live so close to it. It’s scary in itself as I know what the industry is getting away with. That scares me to the point it’s just a matter of time which one of the facilities has an episode, an explosion or fire.”³⁰⁸

William Lyons is a licensed clinical social worker based in Houston. He told Amnesty International about the intersecting challenges faced by the communities he works with, including those along the Ship Channel, that can create anxiety. He said: “Many of the communities I serve are those who are under insured or don’t have insurance [or] are not relatively healthy. They already have pre-existing conditions and they have been growing up in this area, so their lungs are already polluted... anything could create a flare up and result in hospitalization.”³⁰⁹ A lack of access to information and distrust in the petrochemical industry to be truthful about the long-term impacts of exposure to pollutants, serves to compound this anxiety further.³¹⁰

Nery Perez is a community organizer who grew up along the Ship Channel. They often experience headaches when they spend time outdoors. The frequent chemical odours make them anxious for their health. They said:

“I know it can cause cancer; it can be bad for heart disease. For sure it’s made it to where it’s hard to enjoy being outside. Whenever I’m outside my house, mostly in the afternoons, I swear I can smell something in the air. It’s like the smell that would come off my dad’s uniform from work when he was coming back from the refinery. A weird chemical smell. That makes me uncomfortable, what am I breathing in?”³¹¹

Although concerned for their health, Nery expressed feeling conflicted about moving out of the community: “When I think about leaving it’s kind of hard, I know the place so well, I kind of feel a responsibility to the area. Because of everything I know. And what I’ve learned... And the people. I know I can help out.”³¹²

Jessica Hernandez works at an elementary school in Baytown and said several of her co-workers have suffered from reproductive health concerns, including ovarian cancer, cysts and fertility issues.³¹³ She worries about her own reproductive health and exposure to petrochemical pollution: “If I ever did have kids, I’d want a healthy pregnancy and child. It’s difficult to think of that when these issues are very clear. Honestly, it really does scare me.” She also worries for the health of her students: “It worries me because I see these kids every day... and they are growing, and their little bodies are absorbing this environment. You want them to be healthy.” Jessica feels conflicted about leaving the community where she works and has attachments. She went on to say:

“I also don’t have means to leave financially, I do believe when I have an opportunity to live further away, I probably will. It feels wrong because part of me feels badly thinking about leaving, but – at end of day – it’s my health and I want to look out for myself and my family. But it is not possible right now.”³¹⁴

308 Interview in person with Patricia Gonzales, community member and professional advocate, 9 May 2023, Pasadena, Texas.

309 Interview by video call with William Lyons, a licensed clinical social worker, 22 May 2023.

310 Interview by video call with William Lyons, a licensed clinical social worker, 22 May 2023.

311 Interview in person with Nery Perez, community member, 12 May 2023, Channelview, Texas.

312 Interview in person with Nery Perez, community member, 12 May 2023, Channelview, Texas.

313 Interview by voice call with Jessica Hernandez, community member, 18 May 2023.

314 Interview by voice call with Jessica Hernandez, community member, 18 May 2023.

Some interviewees described anxiety for the safety of family, friends and other community members who work in the industry. Stephany Valdez's brother has worked in chemical plants, including along the Houston Ship Channel, for almost a decade. She told Amnesty International: "There's been many instances where he had to go to the emergency room because there was an accident with one of the flares, or they breathed in some toxic chemicals so had to get checked out."³¹⁵ She went on to say:

"I worry about him all the time, long-term, [if] he will develop some sort of chronic disease, just breathing all of that stuff in... It worries me the most that something will happen to him there... I just hate getting those calls from my mom, like 'oh your brother is in the hospital, this happened at work'... And since I live so near [industry] sometimes I hear the alarm going off, or if I'm driving home, I'll see everybody being evacuated as something's happened... It makes me worry about all the workers in general."³¹⁶

Stephany explained that her brother also shared some of her concerns for his safety: "It's a fear he lives with, about how he believes his life will end in an accident in the industry. He has dreams about [it]. But in Mexican households, it's very hard to go through that, to go to therapy..."³¹⁷

6.3.5 HEALTH AND THE IMPAIRMENT OF OTHER RIGHTS

As outlined by the UN Committee on Economic, Social and Cultural Rights (CESCR) in its General Comment 14, "health is a fundamental right indispensable for the exercise of other human rights".³¹⁸ This means that violations of the right to health often impair the enjoyment of other human rights, such as the rights to education or work. Interviewees described how adverse health impacts linked to petrochemical pollution along the Houston Ship Channel have further indirect adverse impacts. For example, illness and attending frequent medical appointments can impair people's ability to work, attend school and fulfil caregiving responsibilities. Loss of work and costs associated with healthcare and medicines can also lead to or exacerbate economic insecurity and anxiety over finances, particularly among disadvantaged communities that typically have less wealth on which to draw and fewer family or social contacts who are able to provide financial support.

Women disproportionately fill caregiving roles and looking after an ill family member can be demanding, stressful, and make it difficult to hold down a job or balance other commitments. In turn, if the caregiver themselves becomes ill as a result of their exposure to pollution, this also has an adverse impact on their ability to fulfil their caregiver duties. James Caldwell, the Director of Houston-based Coalition of Community Organizations explained: "If you're pregnant, you're breathing contaminated air, you're worried about that going to your child. If you get sick, who's going to take care of your kids? What about your job? This [pollution] impacts the whole community."³¹⁹

Stephany Valdez lives close to the ExxonMobil Baytown Complex. She described the costs associated with treating her lupus, asthma and the flare ups she experiences when the pollution is particularly bad: "It's very expensive. The asthma is the most expensive, last month I spent like US\$800 on medical bills alone, because my asthma was acting up, my medicine alone was US\$300... And I have good insurance with my job, but imagine if I didn't."³²⁰

315 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

316 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

317 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

318 UN Committee on Economic, Social and Cultural Rights (CESCR), General Comment 14: The Right to the Highest Attainable Standard of Health (Article 12), 11 August 2000, UN Doc. E/C.12/2000/4, para. 1.

319 Interview in person with Reverend James Caldwell, founder and director of the Coalition of Community Organizations, 2 February 2023, Houston, Texas.

320 Interview in person with Stephany Valdez, community member and professional advocate, 4 May 2023, Houston, Texas.

Patricia Gonzales explained the need for more accessible healthcare, especially for communities with high rates of uninsured people: “It’s difficult when you live in a low-income area. You have to hope that there are clinics... that can help out. We need more county clinics near industry because of people being sick.”³²¹

Community members described how headaches, irritation and illness they experience during episodes of bad pollution can affect their ability to concentrate or fulfil their duties at work.³²² As one resident, “Elena” described: “Every two weeks, [there’s] that smell, I get a headache... I can work, but definitely, it’s very annoying, it’s hard to concentrate. It’s a distraction.”³²³

6.4 THE RIGHT OF ACCESS TO INFORMATION

“Not everybody have a television or look at the news. If they have an alarm or something and we know what [it] means, everybody can be aware of something going on. Then it’s your choice to stay inside or leave. I’d like to have that choice.”³²⁴

“Gladys” (not her real name), community member

Several rights, including the right to health, depend in part on the realization of the right to access to information. Despite the severity of the risks faced by communities who live in the vicinity of petrochemical facilities, residents told Amnesty International that they have very little information available to them. Fenceline communities are mostly unaware of what types and quantities of chemicals neighbouring petrochemical facilities handle, the health risks associated with exposure to pollutants, and the extent of the dangers posed by living within a facility’s vulnerable zone. Nearly all (26 out of 29) community members indicated they were concerned about the lack of information available to them or said they wanted greater transparency from the authorities and industry.

Information from both local agencies and industry, when provided, is too often delayed, sparse, conflicting, and largely inaccessible to those with limited English proficiency. Inadequate access to clear, understandable information hinders peoples’ ability to make informed decisions about their and their families’ health and safety. Many community members expressed frustration at not being made immediately aware of explosions and other chemical releases that pose a threat to their health and even life. Half of the interviewees highlighted the need for a centralized, real-time emergency alert system to notify the public, such as those that already exist for severe weather or missing children. In the absence of an effective alert system, residents said they typically receive information about leaks and disasters via social media, their friends or the news. Sometimes residents learn of these incidents by observing black smoke, flames or strong chemical odours.

321 Interview in person with Patricia Gonzales, community member and professional advocate, 9 May 2023, Pasadena, Texas.

322 Interviews conducted by Amnesty International.

323 Interview with “Elena” (not her real name), high school teacher and community member, 5 May 2023, Baytown, Texas.

324 Interview in person with “Gladys” (not her real name), 9 May 2023, Smith Addition, Houston.

6.4.1 INADEQUATE INFORMATION FROM AUTHORITIES

Community members expressed frustration at authorities downplaying the risks of petrochemical pollution – several cited the response by the EPA and TCEQ to air pollution from petrochemical spills in the aftermath of Hurricane Harvey in 2017 as an example. Former Harris County Attorney Rock Owens told Amnesty International: “The response to Harvey took forever, in terms of getting people out to do clean-ups, informing people what was going on, getting information from the field.”³²⁵ Officials repeatedly assured the public that the air pollution posed no health threat, however an audit by the EPA Office of the Inspector General later found that official communication on air quality was “limited” and the “lack of communication left communities unaware of risks” during and immediately after the hurricane.³²⁶

As described earlier, in the aftermath of the 2019 ITC Deer Park fire, fenceline communities were not made aware of unsafe benzene levels detected for more than two weeks after public health measures had been lifted by the authorities. Despite the wide-reaching impacts of the fire, shelter-in-place advisories were not issued for many neighbouring communities who were assured by local authorities that there was nothing to worry about. Carolyn lives in Channelview, where benzene was also detected by the EPA’s air monitoring data following the fire.³²⁷ She recalled: “We can see the smoke rising and they’re sitting there and telling us, with tanks ablaze and all this going on, there’s nothing to worry about. All the stuff, you’re looking at it, what you’re seeing doesn’t relate to what they’re saying.”³²⁸

Companies are responsible for notifying local emergency officials about any chemical release that may affect the community, however information is not always reported in a timely manner, which can also hinder emergency response.³²⁹ Local authorities have fragmented and inconsistent systems to then alert residents, such as sirens, phone notification alert systems and social media updates. Often these systems rely on community members knowing where to access the information and opt in, in addition to having English proficiency. Most community members told Amnesty International they were unaware of the existence of an alert system and did not know where to look and sign up for alerts.

Inadequate access to real-time air quality information was raised as a concern by several community members and advocates. Advocates told Amnesty International there are significant gaps with TCEQ’s air monitoring network, because monitors are insufficient in number and often too far from communities to provide an accurate picture of potential exposure. Most residents said they were unaware of how to access air monitoring data or if they were, the information is technical and difficult to interpret. Carolyn emphasized the need for air monitors in all impacted neighbourhoods. She said: “We need monitors that community can look at themselves so they can have an informed decision if they want to leave the area or stay, they need that information. We’re not provided any information in a useful time frame.”³³⁰ In its response to Amnesty International, the EPA said it has “recently funded two new PM2.5 monitors in the Houston area” and “is currently in the process of procuring a mobile monitoring sprinter platform van” that will allow its regional division to “measure multiple air pollutants in real-time”. The EPA expects this to be operational in late 2024 or early 2025.³³¹ At the time of publication, the TCEQ did not provide a response to Amnesty International’s inquiries or findings.

325 Interview in person with Rock Owens, former Harris County Attorney, 3 May 2023, Baytown, Texas.

326 EPA Office of Inspector General, *EPA Needs to Improve Its Emergency Planning to Better Address Air Quality Concerns During Future Disasters*, 16 December 2019, https://www.epa.gov/sites/default/files/2019-12/documents/epa_oig_20191216-20-p-0062.pdf

327 Texas Tribune, “Toxic benzene lingered for weeks after shelter-in-place warnings ended following 2019 Houston-area chemical fire” (previously cited).

328 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

329 Houston Chronicle, “Patchwork emergency response efforts leave some residents in the dark after chemical incidents”, 1 June 2019, <https://www.houstonchronicle.com/news/houston-texas/houston/article/Patchwork-emergency-response-efforts-leave-some-13916547.php>

330 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

331 EPA letter to Amnesty International, 21 November 2023. The full letter is in Annex 2.

As described earlier, fenceline communities are not able to easily access information on the risks they face from facilities regulated under the EPA's Risk Management Program, further inhibiting their right to information. The EPA's Federal Reading Room in Texas is located in Dallas, over 200 miles from Houston. The EPA itself has itself acknowledged the barriers, stating:

“To request facility information, a member of the public would need to know how to access it, have the means to access it, and know that the facility exists in their community in order to determine how to access and request the information. These barriers do not appropriately facilitate community right-to-know or equitable distribution of knowledge on fenceline community risks to those most affected by potential releases.”³³²

6.4.2 INADEQUATE INFORMATION FROM COMPANIES

Most interviewees said the companies responsible for chemical releases are not proactive enough in alerting residents and providing timely information and updates. Some residents said they check for information and updates on chemical releases via Community Awareness Emergency Response (CAER) Online, a system run by the East Harris County Manufacturers Association, where community members can view posts and alerts from member facilities regarding operational updates and chemical emergencies.³³³ According to the association, in the event of an industrial incident, “messages offer basic information such as what the incident or event is, where it happened, and whether any action is required by community members... Plant operators try to post urgent messages within 15 minutes of an event, however at times it may take longer.”³³⁴ Interviewees said that updates are often posted long after incidents have been ongoing and they feel wary of the truthfulness of information that is reported. For example, even when flames and black smoke are visible from a plant, the updates will often say there is no threat to the community.

Active CAER Messages

Shell Chemical Company - Deer Park, Posted On - 5/5/2023 4:02:00 PM

Posted On - 5/6/2023 3:28:00 PM - Update 4
This is the Environmental Duty Representative at Shell Deer Park. We are currently experiencing a fire with visible smoke within one of our units. The incident is being handled within the boundaries of this facility and there is no threat to the community from this incident. We apologize for any inconvenience this may cause.

Posted On - 5/6/2023 8:32:00 AM - Update 3
This is the Environmental Duty Representative at Shell Deer Park. Current response activities being conducted at our facility may result in flaring or loud noise. Shell will do its best to limit the duration and amount noise during these activities. We apologize for any inconvenience this may cause.

Posted On - 5/5/2023 8:45:00 PM - Update 2
This is the Environmental Duty Representative at Shell Deer Park. We are currently experiencing a fire, smoke and flaring within one of our units. The incident is being handled within the boundaries of this facility and there is no threat to the community from this incident. We apologize for any inconvenience this may cause.

Posted On - 5/5/2023 4:07:00 PM - Update 1
This is the Environmental Duty Representative at Shell Deer Park. We are currently experiencing fire within one of our units. The incident is being handled within the boundaries of this facility and there is no threat to the community from this incident. We apologize for any inconvenience this may cause.

Recreation of screenshot taken from CAER website during the fire at Shell Deer Park Chemicals in May 2023.

332 Federal Register, “Accidental release prevention requirements: Risk management programs under the Clean Air Act; Safer Communities by Chemical Accident Prevention”; a proposed rule by the Environmental Protection Agency, 31 August 2022, <https://www.federalregister.gov/documents/2022/08/31/2022-18249/accidental-release-prevention-requirements-risk-management-programs-under-the-clean-air-act-safer>.

333 East Harris County Manufacturers Association, “CAER Online”, <https://www.ehcma.org/page/caer-online> (accessed on 6 July 2023).

334 EHCMA, “CAER Online”, <https://www.ehcma.org/page/caer-online> (accessed on 6 July 2023).

“It would be better if they wasn’t here, but since they here and they ain’t going anywhere, be a good neighbour. It’s nothing we can do, we can’t move so we have to live with it... People’s lives are at stake, if something happens, let people know! Be good neighbours. That’s all we ask. Everyone wants a good neighbour.”³³⁵

“Phyllis”, community member

Amnesty International asked the four companies subject to this research about protocols in place to notify residents of planned and unexpected operations that have a potential impact on communities. Only ExxonMobil and LyondellBasell provided information to this effect. ExxonMobil told Amnesty International that it “proactively communicate[s] about planned activities that may potentially impact the surrounding communities or during plant emergencies” via CAER Online, social media platforms and an SMS texting platform (including a Spanish channel) to keep neighbours informed of operational updates.³³⁶ LyondellBasell said its Channelview Complex has “community alert systems to notify residents... to an event at the facility”.³³⁷ These include CAER Online, in addition to an emergency alarm, an evacuation alarm, and an all-clear alarm, which have differing sounds.³³⁸

Inconsistent approaches used by various plants and local authorities to alert residents means that some communities will hear sirens, while some will hear none. Confusing matters further, some community members described overhearing the plants’ own internal alarms and speaker systems for workers, due to the proximity of those facilities to their homes. The multitude of different alarms and sirens makes it difficult for community members to clearly understand where the sirens are coming from or their meaning. Channelview resident Carolyn Stone told Amnesty International: “There are sirens, but they go off regularly. And of course, [the plants] have their testing that they do. I got to the point where I call it community conditioning. Because we hear it so often.”³³⁹

Most community members reported receiving very little to no information from the petrochemical companies about their operations and felt the companies should do more to keep communities informed, for example, in advance of planned start-ups, maintenance or other works that can cause significant disruption and potential pollution within the community. In Baytown, some residents received a letter from ExxonMobil in February 2021 during a period of freezing temperatures that resulted in facility shutdowns. The letter stated: “Our number one priority is always the safety of the people in the community and in our facilities. As a result of the freezing weather conditions... we safely ceased manufacturing and shut down or idled virtually all of our units across the Baytown area, resulting in increased flaring... [W]e deeply apologize for any disruption or inconvenience as a result of the flares.”³⁴⁰

Shirley and Arthur Williams recalled receiving advance notification from ExxonMobil ahead of planned maintenance in February 2023, which they welcomed. However, even with advance warning, Shirley said it did not adequately prepare her for what to expect in terms of the extent of the disruption, which included being woken up nightly for around a month due to loud noise and rumbling: “I tell you it was awful. Every night, it was something new... I did a [video] recording almost every day... It was a shock, I was like, Exxon are you getting ready to blow up?”³⁴¹

335 Interview by phone with “Phyllis” (not her real name), community member, 24 May 2023.

336 ExxonMobil Baytown Area letter to Amnesty International, 4 October 2023. See full letter in Annex 1.

337 LyondellBasell Industries letter to Amnesty International, 4 October 2023. See full letter in Annex 1.

338 LyondellBasell, “Channelview Texas: Community Alert System”, <https://www.lyondellbasell.com/en/channelview-complex/sustainability/community-alert-system/> (accessed on 6 July 2023).

339 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

340 ExxonMobil letter addressed to “Baytown Area Community”, dated 22 February 2021 (copy on file).

341 Interviews in person with Shirley Williams and Arthur Williams, community members, 9 May 2023, Baytown, Texas.

Many of the petrochemical plants send representatives to community advisory meetings, which occur with varying frequency depending on the area and the organizing committee. According to the East Harris County Manufacturers Association, these “are forums for dialogue between community and industry about plant-related issues of community interest or concern.”³⁴² Some of the community members interviewed for the research engaged with these industry meetings and found them to be informative, some questioned their utility or saw them as little more than greenwashing; the majority were unaware of their existence.

The LyondellBasell Channelview Complex has its own Community Advisory Panel to LyondellBasell and Equistar, also known as CAPLE, which meets eight times a year. Through the Channelview Health & Improvement Coalition (C.H.I.C.), resident Carolyn Stone engages regularly with CAPLE. She said:

“I appreciate working with them and having contacts... Until we started doing C.H.I.C., we didn’t know the CAPLE meetings existed and they’d been doing them for years... If there’s an incident over there, it’s nice to know we have a contact that we can ask... We don’t have that with anybody else.”³⁴³

At a Galena Park – Jacinto City community advisory meeting attended by Amnesty International researchers in February 2023, community members put forward priority topics of concern which included the need for a community warning system, information on different odours, the health effects of living alongside the petrochemical industry and an update on the Houston Ship Channel expansion.

6.5 THE RIGHT TO PARTICIPATION

UN GUIDELINES ON THE RIGHT TO PARTICIPATE

Under the right to participate, states must ensure that rights-holders are able to participate and exercise a meaningful influence in decision-making that may affect them.³⁴⁴ The UN Guidelines for States on the Effective Implementation of the Right to Participate in Public Affairs (UN Guidelines on the right to participate) states that this includes meaningful participation before, during and after decision-making and “rights holders should be able to access adequate, accessible and necessary information... to allow them to prepare to participate effectively, in accordance with the principle of maximum disclosure.”³⁴⁵ Accompanying UN guidance asserts that states should develop measures to “encourage the participation of groups that have been historically excluded or whose views and needs have been inadequately addressed in decision-making processes, such as indigenous peoples, people of African descent and minorities.”³⁴⁶

Fenceline communities along the Houston Ship Channel face several barriers to meaningful participation in decision-making, which hinders their ability to raise concerns about industry, object to industry’s expansion and hold polluters accountable. These barriers include inadequate access to information, language barriers faced by fenceline communities and a complex and often opaque permitting process.

342 EHCMA, “Outreach Areas, Community Advisory Panels and Citizens Advisory Panels”, <https://www.ehcma.org/page/Outreach-CACS-CAPS> (accessed on 9 August 2023).

343 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

344 OHCHR, *Guidelines for States on the Effective Implementation of the Right to Participate* (Guidelines for States on the right to participate), October 2018, https://www.ohchr.org/sites/default/files/Documents/Issues/PublicAffairs/GuidelinesRightParticipatePublicAffairs_web.pdf, para. 55.

345 OHCHR, *Guidelines for States on the right to participate* (previously cited), paras 64-68.

346 OHCHR, Report: *Good Practices and Challenges Faced by States in Using the Guidelines on the Effective Implementation of the Right to Participate in Public Affairs*, 2 February 2022, UN Doc. A/HRC/49/42, para. 22.



COMMUNITIES ARE OFTEN UNAWARE OF PLANNED EXPANSIONS OF FACILITIES IN THEIR NEIGHBOURHOODS AND HOW TO ENGAGE IN THE PERMITTING PROCESS;

THIS ACTS AS A BARRIER TO THEIR RIGHT TO PARTICIPATE

TCEQ receives and reviews applications for environmental permits in Texas, after which a public notice is issued, and the public can submit written comments regarding the application. TCEQ will hold a public meeting if there is a “significant interest” in an application or a local legislator requests one.³⁴⁷ In addition, the public may petition the EPA to object to the issuance of a Title V (operating) permit. Pending TCEQ enforcement actions are also open to the public.

In 2020, TCEQ and the EPA reached a resolution following an EPA investigation into language access and whether “TCEQ discriminates against residents... on the basis of national origin, limited-English proficiency, including against Latino Spanish-speaking... residents”.³⁴⁸ To fulfil part of the agreement, in 2021, TCEQ published a Language Access Plan that guarantees interpretation and translation services at public meetings for residents with limited English proficiency.³⁴⁹ Language barriers had previously made it difficult for community members with limited English proficiency to participate in environmental permitting and pushback against polluting industry – another manifestation of environmental racism. While a positive step, advocates stressed that further work is needed to ensure effective implementation – for example, interpretation must be culturally appropriate and convey technical elements of permitting in a way that people can understand.³⁵⁰

The right to participate is closely linked to the full realization of the right to access information, which is a prerequisite and enabler of participation.³⁵¹ Communities are often unaware of planned expansions of facilities in their neighbourhoods and how to engage in the permitting process; this acts as a barrier to their right to participate.³⁵² Juan Flores explained: “Most people don’t understand how the permit process works... it’s not easy to navigate.”³⁵³ Juan and others held the view that permit notices and information about hearings are not well disseminated, which means affected residents often miss the comment period or deadline to request a public hearing. Even when hearings are organized, barriers to participate mean they are often poorly attended, in part due to inadequate dissemination of information and the timing of the hearings (for example weekday evenings) which can make it difficult to attend. Many residents also rely on the industries that pollute their communities for their livelihoods and so will be less likely to speak out against their employers.

On 4 May 2023, Amnesty International researchers attended a public hearing for the renewal of ITC Deer Park’s operating permit.³⁵⁴ Despite the high-profile nature and wide reach of the 2019 fire (described earlier), the large auditorium where the hearing was held was mostly empty. Community members in attendance made comments and posed questions to both TCEQ and ITC on the impacts of the fire and the facility’s ongoing record of non-compliance. As both parties repeatedly stated that they were unable to answer questions due to ongoing litigation or because they did not have the answer,

347 TCEQ, “Overview: Public participation in environmental permitting – for Applications Filed on or after Sept. 1, 2015”, <https://www.tceq.texas.gov/agency/decisions/participation/permitting-participation/public-participation-9-1-2015> (accessed on 13 July 2023).

348 EPA External Civil Rights Compliance Office, “Resolution of EPA Complaint No. 02NO-20-R6”, 4 November 2020, https://www.epa.gov/sites/default/files/2020-11/documents/20-11-4_tceq_recipient_resolution_letter_and_informal_resolution_agreement_final.pdf

349 TCEQ, *TCEQ Language Access Plan*, September 2021, <https://www.tceq.texas.gov/downloads/agency/decisions/participation/language-access-plan-gi-608.pdf>

350 Interviews conducted by Amnesty International.

351 OHCHR, *Guidelines for States on the right to participate* (previously cited), para. 15.

352 Interviews conducted by Amnesty International.

353 Interview in person with Juan Flores, community member and professional advocate, 3 May 2023, Baytown, Texas.

354 Amnesty International attended the ITC Deer Park TCEQ Public Hearing on 4 May 2023, held at the Gaines Mason Auditorium in Deer Park High School.

attendees became increasingly frustrated. During the public comment period, Patricia Gonzales told TCEQ: “It’s sad and disgusting to hear you don’t know anything. You’re sitting there like lame ducks, not answering questions during Q&A. Is this just a rubber stamp for you?”³⁵⁵ “Hazel”, a Deer Park resident who also attended the meeting, said afterwards: “I don’t think it was very publicized. This was the first time I hear there’s comments being taken. The first time I’ve ever seen anyone from ITC... I don’t think they should be operating in this area, with an elementary school a mile away.”³⁵⁶ At the time of writing, the permit is still under consideration. The EPA told Amnesty International it is “monitoring the TCEQ’s progress as they respond to the public comments received” and has “advised TCEQ that due to the nature and extent of impacts to the community from the fire... and environmental justice concerns, that additional public outreach is needed”, when they propose the permit to the EPA for review. It added that “EPA Region 6 staff is committed to thoroughly reviewing the title V permit for ITC Deer Park when we receive the proposed permit from TCEQ.”³⁵⁷ At the time of publication, ITC and TCEQ did not provide a response to Amnesty International’s inquiries or findings.

CASE STUDY

PERMIT RENEWALS AT LYONDELLBASELL CHANNELVIEW COMPLEX

On 12 January 2023, Alondra Torres – a Channelview resident and advocate with Air Alliance Houston – attended a public hearing for Lyondell Chemical Company’s application for a modified air permit renewal at the LyondellBasell Channelview Complex.³⁵⁸ At the hearing, Alondra and other community members asked TCEQ to deny the permit request until the company is held to account for its current human rights impacts and adheres to existing permit limits.³⁵⁹ Alondra told Amnesty International she suspected insufficient outreach had been made to notify residents of the hearing: “People were showing up towards the end, they were saying they just showed up because it was on the news five minutes ago. Not because Lyondell or TCEQ had given them notice, but because they’d just seen it on the news.”³⁶⁰

On the day of the hearing, Equistar Chemicals LP (the other LyondellBasell subsidiary at the Channelview Complex) experienced a leak, which lasted over 101 hours and released over 88,000 pounds of pollution, including 1,3 butadiene, benzene, ethylene and toluene.³⁶¹ Remarking at the hearing on the unusual flaring and black smoke from the complex, Carolyn Stone said: “I thought it was kind of a bad day, when you’re applying for a permit, to have black smoke going across the sky into the community of Channelview.”³⁶²

On 18 May 2023, the EPA objected to the proposed renewal of a federal operating permit for another facility in the LyondellBasell Channelview complex, Equistar Chemicals LP. In a letter to TCEQ, EPA provided reasons for the objection, including environmental justice concerns and potential health risks to local communities.³⁶³ At the time of writing, neither permit has yet been issued.

355 Patricia Gonzales during the formal comment period at ITC Deer Park TCEQ Public Hearing on 4 May 2023 (notes on file with Amnesty International).

356 Interview by voice call with “Hazel” (not her real name), community member, 19 May 2023.

357 EPA letter to Amnesty International, 21 November 2023. The full letter is in Annex 2.

358 TCEQ, “Public Meeting on Lyondell Chemical Company’s Proposed Amendment to Air Quality Permit Number 83817”, <https://www.tceq.texas.gov/agency/decisions/hearings/events/2023-01-12-lyondell-chemical-company-83817-pm> (accessed 5 August 2023)

359 See Air Alliance Houston’s Twitter (X) thread, 13 January 2023, <https://twitter.com/airallianceHOU/status/1613719680966959105>

360 Interview by video call with Alondra Torres, community member and professional advocate, 11 May 2023.

361 TCEQ, “Air Emission Event Report Database Incident 393665”, 10 May 2023, <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=393665>

362 Carolyn Stone, Channelview resident and advocate with C.H.I.C, at the public hearing for Lyondell Chemical Company’s air permit 83817, 12 January 2023, via Air Alliance Houston’s Twitter account <https://twitter.com/airallianceHOU/status/1613722814724603904>

363 EPA, “Objection to Title V Permit No. 01426, Equistar Chemicals, L.P. Equistar Channelview Facility”, 18 May 2023, https://www.epa.gov/system/files/documents/2023-05/2023.05.18.Equistar_Objection_Ltr_01426%20dfg.pdf

The sheer volume of facilities along the Houston Ship Channel, and continual expansions, mean that the companies are constantly being permitted. It can be challenging and time consuming for community members and advocates to keep track of the constant barrage of permit applications and organize and coordinate responses. It can also contribute to fatigue or apathy. Terri Blackwood, a Baytown resident and advocate, said: “[The facilities are] constantly being permitted... it would be a substantial job to figure out what’s getting re-permitted here.”³⁶⁴

“It’s a constant battle”, explained Juan Flores.³⁶⁵ He said: “The only way to go against these companies is to stop their permit renewals. Once they’re open, it’s hard to get rid of them.” Even when a facility has a history of non-compliance with environmental regulations and communities raise concerns, often the company will still be granted the permit. Juan said: “The community will organize, will pour their hearts out and the company still gets the permit. People get frustrated, it wears them out.”³⁶⁶

Several interviewees held the perception that TCEQ automatically approves permits without adequate consideration of the impacts on and concerns of community members. “Vincent” surmised: “TCEQ are see no evil, hear no evil. They rubber stamp everything! Any time one of the plants puts in for a permit, they get it automatically.”³⁶⁷

AirMail is an online tool created by Air Alliance Houston that automatically pulls through data from the TCEQ website to allow users to easily see where polluting projects are planned and how to participate in the permit process.³⁶⁸ Interviewees said the TCEQ’s website can be difficult to navigate and information on permit applications cannot be filtered, for example to search by area or industry.³⁶⁹ Amnesty International researchers confirmed this by reviewing the website themselves. Using AirMail in August 2023, Amnesty International found 51 permit notices for petrochemical facilities and refiners in Harris County, the vast majority of which were concentrated along the Houston Ship Channel.³⁷⁰

6.6 PETROCHEMICAL INFRASTRUCTURE FURTHER THREATENS RIGHTS

The Houston Ship Channel’s sprawling petrochemical industry relies on a vast and energy-intensive infrastructure to move feedstocks and products through the supply chain, including pipelines, waterways and ports, railways, highways and storage facilities. This infrastructure is also a source of pollution and environmental damage, which further harms fenceline communities’ human rights. From the widening of the Ship Channel to the expansion of highway I-45 (which has been subject to a nearly two-year federal civil rights investigation)³⁷¹ this infrastructure is being expanded to support the petrochemical industry’s own expansion.

364 Interview in person with Terri Blackwood, community member, 5 May 2023, Baytown, Texas.

365 Interview in person with Juan Flores, community member and professional advocate, 3 May 2023, Baytown, Texas.

366 Interview in person with Juan Flores, community member and professional advocate, 31 January 2023, Houston, Texas.

367 Interview in person with “Vincent” (not his real name), community member, 5 May 2023, Baytown, Texas.

368 Air Alliance Houston, “AirMail”, <https://aah-airmail.org/app/notices> (accessed on 11 July 2023).

369 Interviews with community members. See: TCEQ, “173214Pending Permit Application Information: Air Permits / Solicitudes de permiso pendientes para Aire”, <https://www.tceq.texas.gov/permitting/air/newsourcereview/airpermits-pendingpermit-apps> (accessed on 13 July 2023).

370 Air Alliance Houston, “AirMail”, <https://aah-airmail.org/app/notices> (accessed on 23 August 2023).

371 Houston Public Media, “TxDOT’s I-45 expansion project will resume after federal officials resolve civil rights investigation”, 7 March 2023, <https://www.houstonpublicmedia.org/articles/news/transportation/2023/03/07/445409/txdots-i-45-expansion-project-will-resume-after-federal-officials-resolve-civil-rights-investigation/>



Petroleum and petrochemical pipelines run alongside a hospital in Baytown, Texas, © Amnesty International, May 2023

6.6.1 FLOATING CHEMICAL STORAGE: BARGE FLEETING

Some communities along the Houston Ship Channel face potential impacts from the high density of barges moored close together storing petrochemical commodities adjacent to their neighbourhoods. This is an industry practice known as “fleeting”, where barges remain stationary in a specific location while they wait for the most favourable market conditions under which to sell the petrochemical commodity they are carrying.³⁷² In Channelview, Amnesty International observed multiple barges moored together in the San Jacinto River adjacent to Meadowbrook Park and housing in San Jacinto River Estates.³⁷³

Barges can release VOCs and other hazardous air pollutants, depending on the type of cargo.³⁷⁴ This can result in a significant amount of localized pollution if there is a high density of barges within a small area.³⁷⁵ Residents who live nearby to barge fleeting areas told Amnesty International they frequently experience chemical odours – indicative of such localized pollution – but a lack of air monitors in these areas mean they do not have data to confirm their suspicions. Pollutants can be released during loading and unloading, and accidents such as fires and explosions. Severe weather such as high winds or flooding can also cause damage and spills.

372 Environmental Defense Fund, *The Houston Barge System: A Brief Review of Operations and Opportunities*, 2012, <https://www.edf.org/sites/default/files/houston-barge-system.pdf>, p. 7.

373 Channelview is located on the north-eastern curve of the Ship Channel where it meets the San Jacinto River.

374 Environmental Defense Fund, *The Houston Barge System* (previously cited), p. 7.

375 Environmental Defense Fund, *The Houston Barge System* (previously cited), p. 7.

Residents report struggling to access information on what types and quantities of chemicals are being stored in the barges and the companies that operate them. This is a concern, as storing incompatible chemicals closely together creates a risk of hazardous chemical reactions, such as fires and explosions.³⁷⁶ Despite repeated requests to local authorities, residents said they are unable to obtain information on who regulates the mooring areas and what safety measures are in place. This has led some residents to conclude that the barges in the public waterways off the Houston Ship Channel are unregulated. Greg Moss, a Channelview resident, told Amnesty International:

There's 75 [barges] parked down the road. They'll just go pick up product and there's no telling what's on them, it's a big concern. That's what scares me more than the plants. They don't have people on them to control them. It's an unregulated floating chemical storage facility sitting right there.³⁷⁷

Amnesty International asked the four companies subject to this research about what due diligence they carry out once products have left their facilities but are awaiting transit in the local area (for example, while being held in third party storage or distribution facilities and barges). None provided information to this effect.

6.6.2 EXPANSION OF HOUSTON SHIP CHANNEL

To expand the Houston Ship Channel, Port Houston is working with the US Army Corps of Engineers (USACE). This project, also known as Project 11, involves deepening and widening the Ship Channel by up to 46.5 feet and 170 feet, respectively, which will produce an estimated one million cubic yards of dredged materials.³⁷⁸ The dredged materials will be placed in historic and new dredge dumps, many of which are in predominantly Black and Latinx/Hispanic communities, such as Pleasantville, Galena Park and Clinton.³⁷⁹

Residents and advocates told Amnesty International they are concerned about potential exposure to chemical runoff from the dredge material waste sites, that could occur during heavy rains and flooding, for example. The Houston Ship Channel is heavily polluted, a result of decades of industrial activity and spills. Advocates have called for the USACE and Port Houston to test the existing sites to make sure they are safe before adding further dredged materials and relocate sites farther away from communities.³⁸⁰ Initial analysis of results from third party testing of the soil at the edge of existing dredge sites has identified harmful contaminants, including lead and mercury, suggesting the need for further testing.³⁸¹ In a letter in response to the report's findings, Port Houston said Project 11 has been vetted by the EPA and materials to be dredged have undergone "rigorous sampling and analysis... to confirm they are proper for placement in confined upland disposal facilities, and that any runoff of effluent maintains TCEQ surface water quality standards."³⁸² Both Port Houston and USACE said they engage

376 EPA, "Incompatible chemicals storage", January 2008, https://www.epa.gov/sites/default/files/2016-12/documents/incompatible_chem_storage.pdf

377 Interview in person with Greg Moss, community member, 8 May 2023, Channelview, Texas.

378 Houston Ship Channel Expansion Project 11, "Project overview", <https://expandthehoust.wpengine.com/project-overview/> (accessed on 21 June 2023); Oil and Gas Watch, "Houston Ship Channel dredging for oil, chemical industry includes plan to dump toxic sediment in minority neighborhoods", 4 January 2023, <https://news.oilandgaswatch.org/post/houston-ship-channel-dredging-for-oil-chemical-industry-includes-plan-to-dump-toxic-sediment-in-minority-neighborhoods>

379 KPRC, "As Houston Ship Channel expands, Pleasantville and Galena Park residents express concerns about potential toxic exposures", 7 March 2023, <https://www.click2houston.com/news/local/2023/03/08/as-houston-ship-channel-expands-pleasantville-and-galena-park-residents-face-concerns-about-potential-toxic-exposures/>

380 Interviews conducted by Amnesty International.

381 One Breath Partnership, "What is Port Houston's Project 11?", 6 July 2023, <https://onebreathhou.org/newsroom/2023/07/houston-ship-channel-project-11-expansion-environmental-justice-concerns/>

382 Letter from Port Houston to Amnesty International, 30 November 2023. The full letter can be found in Annex 2.

with local communities. USACE said: “Our decision-making integrates environmental considerations... and extensive efforts over the years include considering the perspectives of all interested parties, particularly historically marginalized communities.”³⁸³

Siting potentially toxic dredged materials near racialized communities who already face multiple exposures to harmful pollutants from industries along the Houston Ship Channel continues a long history of environmental racism – as evidenced by the case of Pleasantville.

CASE STUDY

DREDGE DUMPS IN PLEASANTVILLE

Historically, waste disposal sites in Houston have disproportionately been sited in Black neighbourhoods and near Black schools.³⁸⁴ Pleasantville, home to a predominantly Black community, is one of the areas where dredged materials from the Ship Channel are being dumped. Established by developers in 1948 as a community for Black residents who were restricted from living elsewhere in the Houston area due to racist policies of segregation and redlining, the community has been subject to environmental racism since its inception.³⁸⁵ Commenting on the ongoing legacy of environmental racism that Project 11 poses to racialized communities, Robert Bullard told Amnesty International:

“The siting of dredge material from the Houston Ship Channel follows the same patterns we discovered in Houston four decades ago—waste sites are disproportionately located in Black and Latino neighborhoods... Houston’s Black and Brown neighborhoods have become the de facto “dumping grounds” and environmental “sacrifice neighborhoods” for the Ship Channel expansion.”³⁸⁶

383 Letter from USACE to Amnesty International, 30 November 2023. The full letter can be found in Annex 2.

384 R. D. Bullard, “Solid waste sites and the Black Houston community”, April 1983, *Sociological Inquiry*, Volume 53, Issue 2-3, <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1475-682X.1983.tb00037.x>, pp. 273-288,

385 Houston Flood Museum, “Project Pleasantville: A timeline of Pleasantville”, <https://houstonfloodmuseum.org/timeline-of-pleasantville/> (accessed on 8 July 2023).

386 Email exchange with Robert Bullard, Founding Director of the Bullard Center for Environmental & Climate Justice and Professor of Urban Planning and Environmental Policy at Texas Southern University, 25 July 2023.

7. ACCESS TO JUSTICE AND REMEDY

7.1 STATE FAILURE TO REGULATE INDUSTRY AND PROTECT RIGHTS

"I want the rules of the road to be fair. I want them to be complied with. I want them to be enforced and what we've seen is the state of Texas has created a regulatory structure that is so industry friendly that they're really not even regulating anymore."³⁸⁷

Christian Menefee, Harris County Attorney

For decades, petrochemical facilities have been polluting the environment in which fenceline communities live, work, and breathe, yet the authorities have failed to take adequate action to regulate the industry and enforce compliance with domestic legislation and international human rights standards. TCEQ has the authority to enforce federal environmental laws within Texas and can require polluters to clean up illegal pollution, take specific actions to prevent the violations from recurring, or pay penalties. However, the agency rarely enforces fines against companies that release pollution in violation of their permit limits or requires them to take corrective action to prevent malfunctions from recurring, even when they occur repeatedly and result in the release of large volumes of pollution.³⁸⁸ Analysis of state records by the Environmental Integrity Project and Environment Texas in 2017 found that TCEQ imposed penalties for less than 3% of unpermitted pollution releases.³⁸⁹ In June 2022, a TCEQ spokesperson told Public Health Watch that "the current enforcement rate for reported emission events is over 10%."³⁹⁰ Amnesty International asked TCEQ for information on its current enforcement rate for emissions events but, at the time of writing, TCEQ did not respond. In response to a further letter giving the agency the opportunity to respond to the report findings, TCEQ said: "We have no comment at this time."³⁹¹



387 Interview in person with Christian Menefee, Harris County Attorney, 10 May 2023, Houston, Texas.

388 Environmental Integrity Project, *The Polluter's Playbook: How Loopholes and Lax Enforcement Harm Air Quality in Texas*, 23 March 2023, p. 4.

389 Environmental Integrity Project, *Texas Fails to Penalize 97 Percent of Illegal Air Pollution Releases*, 7 July 2017 <https://environmentalintegrity.org/news/texas-fails-to-penalize-97-percent-of-illegal-air-pollution-releases/>

390 Public Health Watch, "Houston-area residents take pollution monitoring into their own hands: The results are worse than feared.", 15 December 2022, <https://publichealthwatch.org/2022/12/15/houston-texas-air-pollution-chemicals-monitors/>

391 TCEQ email to Amnesty International, 1 December 2023.

TCEQ SUNSET REVIEW

The Texas Sunset Advisory Commission periodically reviews the effectiveness of state agencies. In its 2022-2023 review of the TCEQ, the Sunset Commission found TCEQ commissioners have become “reluctant regulators” that encourage industry to “self-police”.³⁹² Its report stated:

“TCEQ’s compliance monitoring and enforcement processes could better deter environmental violations, monitor the riskiest actors, and provide more equitable treatment of regulated entities. TCEQ’s evaluation of a facility’s compliance history treats certain industry participants unfairly, excludes important information, and does not sufficiently inform future permitting and enforcement decisions. Likewise, TCEQ’s definition of repeat violators misses habitual noncompliance, and its policies may incentivize industry to conceal vital monitoring and recordkeeping violations...”³⁹³

In June 2023, state lawmakers voted to increase the maximum pollution penalty from US\$25,000 to US\$40,000 per day for harmful, repeat offences TCEQ determines could have been avoided, as recommended by the Sunset Commission.³⁹⁴ When enforced, fines are often well below the maximum penalty and insufficient to incentivize compliance. Brandt Mannchen, a former air pollution investigator for the City of Houston, told Amnesty International: “These fines, they’re hardly a drop in the bucket... They mean nothing when the companies are pulling in billions of dollars a year.”³⁹⁵ Daniel Cohan, a professor at Rice University, explained: “The fines that companies pay are so small compared to the value of the petrochemical products they sell that they can be seen as a routine cost of doing business.”³⁹⁶

Companies are able to avoid penalties for unpermitted pollution events by invoking an “affirmative defense”, a legal loophole in Texas that waives enforcement for air pollution emissions events that are reported as “unplanned and unavoidable”.³⁹⁷ The Sunset Commission found that the TCEQ granted the affirmative defense in over 85% of unauthorized emissions events from 2017 to 2021.³⁹⁸ In its analysis of the affirmative defense, the Environmental Integrity Project concludes that it “gives polluters confidence they will not be punished for unauthorized pollution releases”, which “creates an incentive for polluters *not* to invest in measures necessary to prevent breakdowns that lead to significant unauthorized pollution releases.”³⁹⁹

Frustration over underenforcement of the petrochemical industry was echoed by several of the community members interviewed for the research. Carolyn said: “TCEQ is so ineffectual. Their fines are so limited. Conceivably if you do the math for the violations... it appears that comparably, a company gets fined less than one person who’s affected by it would spend on medical bills. So, it’s very unfair.”⁴⁰⁰

392 Texas Sunset Advisory Commission, *Staff Report with Final Results: Texas Commission on Environmental Quality*, June 2023, <https://www.sunset.texas.gov/reviews-and-reports/agencies/texas-commission-environmental-quality>, p. 1.

393 Texas Sunset Advisory Commission, *Staff Report with Final Results* (previously cited), p. 3.

394 Public Health Watch, “Texas lawmakers raised pollution fines for the first time in more than a decade: But regulatory concerns remain”, 2 June 2023, <https://publichealthwatch.org/2023/06/02/texas-lawmakers-raised-pollution-fines-for-the-first-time-in-more-than-a-decade-but-regulatory-concerns-remain/>

395 Interview in person with Brandt Mannchen, former air pollution investigator for the City of Houston, 5 May 2023, Baytown, Texas.

396 Interview by video call with Daniel Cohan, Associate Professor, Civil and Environmental Engineering at Rice University, 18 May 2023.

397 Texas Sunset Advisory Commission, *Staff Report with Final Results* (previously cited), p. 36.

398 Texas Sunset Advisory Commission, *Staff Report with Final Results* (previously cited), p. 37.

399 Environmental Integrity Project, *The Polluter’s Playbook: How Loopholes and Lax Enforcement Harm Air Quality in Texas*, 23 March 2023, p. 12.

400 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

7.2 SOCIETAL AND CULTURAL BARRIERS

Societal and cultural factors that prevent people in the region from speaking out against the petrochemical industry represent a significant barrier to access justice. The lives of communities along the Houston Ship Channel are closely intertwined with the petrochemical industry, which not only supports livelihoods, but also donates to and has a presence in schools, universities, hospitals, places of worship and so on. This industry tactic has paid off; many interviewees described a widespread feeling of dependence on the industry, which makes it difficult to raise objections. Jessica Hernandez works at a school that receives financial donations from ExxonMobil. The company also gives away backpacks and stationery, and gives talks to the children. She told Amnesty International:

“I’ve seen people get upset when talking about pollution and refineries. Generations have worked in these facilities so there’s a strong attachment to it and that’s hard to get through... There’s a lot of what they call ‘giving back to the community’ from Exxon, which holds people back from being more vocal and advocating against them.”⁴⁰¹

Speaking out against industry can also lead to stigmatization in a community largely beholden to industry. As Carolyn Stone explained: “Understand, it’s your employer, your neighbour. It may be your family or whatever, that you’re reporting against. So, there’s the stigma if it gets back to you.”⁴⁰²

A distrust of the justice system among fenceline communities further prevents people from seeking remedy for harms caused by the petrochemical industry. Individuals who have been subject to discrimination and abuse by police forces or other state authorities may be wary to involve the authorities or rely upon the justice system for issues they face. Systemic racism within the US justice system and racial profiling, discrimination, and excessive use of force by law enforcement – particularly against Black people – is also a further deterrent for racialized groups.⁴⁰³ Yudith Nieto is the co-founding member of Another Gulf Is Possible and works with communities impacted by petrochemical pollution along the Ship Channel. She explained: “A lot of low-income people who have been criminalized won’t come forward and advocate, for fear of retribution or the trauma of being in that system. Anything that has to do with legality, it’s a scary thing. That keeps people from speaking up for themselves.”⁴⁰⁴

As well as being low-income, many fenceline community members have migrant backgrounds, may be undocumented or have members of their household who are undocumented. Fear of retribution and immigration enforcement can prevent impacted individuals from objecting to the industry, while unfamiliarity with, or a perception of how, the justice system operates can also play a role. As advocate Juan Flores explained: “A lot of Mexican people, they don’t speak up, they fear retribution. That’s half my battle, they still carry that notion in their head... my mother is the same, [she’ll say] mijo, be careful.”⁴⁰⁵

401 Interview by voice call with Jessica Hernandez, community member, 18 May 2023.

402 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

403 UN Expert Mechanism to Advance Racial Justice in Law Enforcement, “USA: Whole-of-government leadership needed to address legacy of slavery and redefine policing, UN experts say”, 5 May 2023, <https://www.ohchr.org/en/press-releases/2023/05/usa-whole-government-leadership-needed-address-legacy-slavery-and-redefine>; CERD, Concluding Observations on combined tenth to twelfth reports of the USA, 21 September 2022, UN Doc. CERD/C/USA/CO/10-12.

404 Interview by voice call with Yudith Nieto, former community member and co-founding member of Another Gulf Is Possible, 19 May 2023.

405 Interview in person with Juan Flores, community member and professional advocate, 3 May 2023, Baytown, Texas.

7.3 POLLUTION COMPLAINTS

Half of the community members interviewed revealed they had previously filed a complaint about odours, smoke, or noise pollution to either the authorities or a petrochemical company. Some said they did not know how to make a complaint. “Gladys” said if she knew how, she would: “I wouldn’t think twice, it would benefit my health.”⁴⁰⁶ Others felt making a complaint would be futile.

Most interviewees encountered difficulties while making pollution complaints. First, they said it can be difficult to know how to submit a complaint and who to submit it to. Depending on the type of complaint, residents can report concerns via the phone or in some cases via a webform to city or county officials, TCEQ and the EPA. Those with limited English proficiency face even greater difficulties due to language barriers within complaints processes. For example, the online complaints form for Harris County Pollution Control Services Department is available only in English.⁴⁰⁷

Three days before she spoke to Amnesty International, “Josephine” encountered an odour at her home.⁴⁰⁸ She recalled going to collect the newspaper from her front garden in the morning and said: “It was a horrible smell. Horrible. I never found where it came from. It’s hard to get to the right people. They have their wall, I finally just kinda gave up on ‘em... [That day] nobody answered the phone, so I left a message, ‘please call me’. Nobody called.”⁴⁰⁹

Residents described difficulties in getting through to an operator, encountering voicemails or getting continuously redirected, which they found frustrating and even off-putting. Yvette Arellano, an advocate and community member, told Amnesty International: “In the seven years that I have been attempting to call TCEQ in order to report odours or make a complaint, I will get on the phone and it takes over an hour to be continuously redirected... So, it’s almost a way to try and discourage folks from calling in and submitting those kinds of complaints.”⁴¹⁰

Some residents knew of company representatives to make complaints to but said the companies often deny they are the source of the pollution. As “Vincent” recalled: “There will periodically be sulphur dioxide smells round here, and it has a very distinctive smell. But whenever we call [ExxonMobil’s] emergency number they say ‘oh it’s not us, we’re not flaring anything. Must be someone else.’”⁴¹¹ He mimicked crossing his fingers behind his back and went on to say: “It’s bizarre. But there are so many players, it’s easy for them to do that... I periodically check the CAER and their general sites and I try to use their numbers to report things but I find it to be useless. It’s all for show.”⁴¹²

All community members who had submitted complaints felt the response they received was inadequate or received no response. Interviewees reported frequently waiting hours, or even days for a pollution inspector to show up and investigate the issue, by which time the odour had inevitably dissipated and there was no longer proof to support their claim.

406 Interview in person with “Gladys” (not her real name), 9 May 2023, Smith Addition, Houston.

407 Harris County Pollution Control Services, “Report air, water, or solid waste pollution”, <https://webapps2.harriscountytexas.gov/PCSComplaintForm/complaint-form> (accessed on 17 July 2023).

408 Interview in person with “Josephine” (not her real name), community member, 13 May 2023, Baytown, Texas.

409 Interview in person with “Josephine” (not her real name), community member, 13 May 2023, Baytown, Texas.

410 Interview in person with Yvette Arellano, community member and Director of Fenceline Watch, 11 May 2023, Houston, Texas.

411 Interview in person with “Vincent” (not his real name), community member, 5 May 2023, Baytown, Texas.

412 Interview in person with “Vincent” (not his real name), community member, 5 May 2023, Baytown, Texas.

COMMUNITY AIR MONITORING ENABLES RESIDENTS TO BACK UP POLLUTION CLAIMS

A lack of adequate community-level air monitoring data combined with long response times for community pollution complaints makes it difficult for communities to seek accountability and remedy. To address this gap and inform county air monitoring, Air Alliance Houston has built and continues to expand its community-based air monitoring networks in communities with the greatest risks – including along the Houston Ship Channel. The monitors are installed at people’s houses, schools, and churches, and measure nitrogen oxides, ozone, VOCs and particulate matter, in addition to recording wind direction, speed and other meteorological readings.⁴¹³ Accessed from air monitoring dashboards,⁴¹⁴ these networks also allow communities to access real-time air quality data so they can make informed decisions.

“We started monitoring our air because we need to defend ourselves, we need to back up our claims... Before I’d call Harris County, I’d say it smells so bad here, but by the time they came the next day, the smell had gone and there was no proof of the pollution spike. Now we will be able to show them [the data].”⁴¹⁵

Juan Flores, a resident of Galena Park and Air Alliance Houston’s Community Air Monitoring Program manager

In June 2023, a bill known as SB 471 was passed in the Texas legislature which stipulates that TCEQ does not need to investigate and respond to certain complaints, especially from residents who have filed multiple complaints in the past.⁴¹⁶ The bill came into force as of 1 September 2023 and will likely further discourage residents from reporting pollution complaints.

7.4 LEGAL REMEDIES

Communities adversely impacted by the petrochemical industry have limited avenues to seek legal remedy. Local residents can sue polluters to enforce compliance and penalties under citizen suit provisions in environmental laws, such as those contained in the Clean Air Act and Clean Water Act, however they cannot seek personal compensation for harms. Most courts in the USA have rejected attempts by citizen groups to use federal environmental laws to seek clean-up or compensation from polluting companies.⁴¹⁷ Citizen suits against large corporate polluters are unusual because of their complexity, the time and expense involved, and the seemingly unlimited legal resources of the polluting companies.

Communities face several obstacles to accessing redress for corporate abuse by the petrochemical industry, not least the power asymmetry of having to “prove” the harms through “scientific evidence”. As described earlier, it is often impossible to pinpoint a single environmental factor that is the cause of an individual’s illness and therefore prove with certainty that a company’s emissions are to blame. It is also difficult to attribute elevated pollution in a community to a particular company. This is especially challenging in the context of the Houston Ship Channel where there is a high concentration of industrial

413 Air Alliance Houston, “Community air monitoring network”, <https://airalliancehouston.org/our-advocacy/our-campaigns/community-air-monitoring-network/> (accessed on 7 July 2023).

414 Air Alliance Houston, “Air monitoring dashboards”, <https://airalliancehouston.org/air-monitoring/> (accessed on 7 July 2023).

415 Interview in person with Juan Flores, community member and professional advocate, 31 January 2023, Houston, Texas.

416 Texas Senate Bill 471, passed 18 June 2023, <https://legiscan.com/TX/text/SB471/id/2641131>

417 Thomson Reuters Practical Law, “Environmental law and practice in the United States: Overview”, 2021, <https://uk.practicallaw.thomsonreuters.com/0-503-4622>

pollution sources. Evidentiary obstacles also prevent rights-holders from seeking redress for damage to property. For example, obtaining scientific and engineering data to prove with absolute certainty that damage was caused by a company's operations is prohibitively costly and time consuming for most. To fulfil victims' right to access to remedy, the burden of proof should be on the companies themselves – who have wealth and resources at their disposal – to prove that their operations are safe and not harmful to human rights and the environment. Reversing the burden of proof is a necessary step to correcting the power imbalance between corporate actors and affected communities.

Described below, ExxonMobil's arguments against claims brought in a citizen suit by Baytown residents and the protracted nature of the case is emblematic of some of the barriers to justice that communities face, as well as the range of tactics companies can deploy to counter litigation that seeks to hold them accountable.

CASE STUDY

LONG-RUNNING CITIZEN SUIT AGAINST EXXONMOBIL BAYTOWN COMPLEX

In December 2010, environmental groups Sierra Club and Environment Texas filed a citizen suit on behalf of their members against ExxonMobil to enforce compliance and seek civil penalties over repeated violations of the Clean Air Act at its Baytown Complex. The plaintiffs alleged that in an eight-year period between 2005 and 2013, ExxonMobil released millions of pounds of hazardous and carcinogenic pollutants in violation of its permit limits, based on ExxonMobil's self-reported emissions records.⁴¹⁸ The plaintiffs argued that ExxonMobil's efforts to prevent violations at the Baytown Complex have been inadequate and the pollution has adversely affected their members and the public in general.⁴¹⁹ Thirteen years later, the case has still not been concluded, despite a judge ruling in 2017 that ExxonMobil had violated the Clean Air Act on 16,386 separate occasions and imposing a US\$19.95 million penalty.⁴²⁰

ExxonMobil initially filed a motion to dismiss the case, which the court denied. The company then went on to draft an enforcement order against itself and provided it to TCEQ; in 2012, ExxonMobil entered into an agreed order with TCEQ which imposed a penalty of US\$98,000, half of which ExxonMobil was allowed to pay to the industry air monitoring initiative Houston Regional Monitoring Corporation, of which ExxonMobil is a member.⁴²¹ ExxonMobil later argued in court that the citizen suit could not supplant ongoing enforcement activities against it.⁴²²

418 [Plaintiff's Proposed] Findings of Fact and Conclusions of Law, 23 June 2014, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation; ExxonMobil Chemical Company; ExxonMobil Refining; Supply Company*, <https://truthout.org/app/uploads/2022/07/Attachment-3-Plaintiff-Post-Trial-Brief-on-Environment-Texas-v-ExxonMobil-6.23.14.pdf>

419 [Plaintiff's Proposed] Findings of Fact and Conclusions of Law, 23 June 2014, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation; ExxonMobil Chemical Company; ExxonMobil Refining; Supply Company*, <https://truthout.org/app/uploads/2022/07/Attachment-3-Plaintiff-Post-Trial-Brief-on-Environment-Texas-v-ExxonMobil-6.23.14.pdf>

420 United States Court of Appeals for the Fifth Circuit, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation; ExxonMobil Chemical Company; ExxonMobil Refining; Supply Company*, 30 August 2022, <https://www.ca5.uscourts.gov/opinions/pub/17/17-20545-CV1.pdf>

421 [Plaintiff's Proposed] Findings of Fact, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation* (previously cited), pp. 357-359.

422 Law 360, "Exxon says enviros can't sue it over refinery emissions", 2 April 2013, <https://www.law360.com/articles/429326/exxon-says-enviros-can-t-sue-it-over-refinery-emissions>

CASE STUDY (continued)

ExxonMobil has filed multiple appeals against the 2017 decision, arguing that plaintiffs must show with scientific certainty that each of the violations can be directly traced to specific health problems suffered by the groups' members, and that citizens should not be allowed to bring wide-ranging enforcement actions, such as this citizen suit.⁴²³ In 2020, the Court of Appeals for the Fifth Circuit (Fifth Circuit) ruled that the trial judge needed to reconsider whether the plaintiffs had sufficiently established standing by showing "traceability" for each violation. In 2021, the district court reduced the penalty to US\$14.25 million, determining the plaintiffs had established traceability under the appellate court's new guidelines for 3,651 violations. The court concluded that ExxonMobil benefited from non-compliance to the value of more than US\$14 million because the company should have implemented many years earlier four emission-reducing projects eventually mandated by a 2012 agreement between Exxon and state regulators.⁴²⁴ Exxon appealed again, but in 2022 the three-judge Fifth Circuit panel ruled 2-1 against ExxonMobil, upholding the penalty and the district court's conclusion that ExxonMobil benefited from non-compliance.⁴²⁵ In its decision, the Fifth Circuit determined that the plaintiffs "easily" met their burden of proving injury for each alleged violation because: "throughout the claims period, [they] regularly saw flares, smoke, and haze coming from the complex; smelled chemical odors; suffered from allergy-like or respiratory problems; feared for their health; refrained from outdoor activities; or moved away."⁴²⁶

In February 2023, however, the Fifth Circuit granted ExxonMobil's petition for an "en banc" review of the split panel decision upholding the penalty, in which all active judges on the court hear a case. The National Environmental Law Center – representing the plaintiffs – has described the move as a "ploy" to avoid a financial penalty "by persuading enough judges to undermine the role that Congress intended citizens to play in enforcing the nation's core environmental laws."⁴²⁷

It is virtually impossible and overly onerous for citizens to prove with scientific certainty that the harms they suffer as a result of corporate pollution are linked to and caused by specific emissions events, and that kind of proof is not even an element of the plaintiff's claims against ExxonMobil (which simply require demonstrating that ExxonMobil exceeded the emission limits in its permits). Requiring such proof just to establish that plaintiffs have a legal standing to bring their claims is a tactic to keep legitimate claims from ever getting a hearing, and is especially burdensome in a region with multiple industrial pollution sources – a fact that companies try to use to their benefit. If ExxonMobil is successful in challenging the court's decisions on this basis, it will set an impossibly high barrier for many of those who have been harmed by industrial pollution to challenge corporate abuse and seek justice.

423 Washington Post, "Toxic air, explosions: Inside the bitter battle between Texas residents and Exxon", 16 March 2023, <https://www.washingtonpost.com/climate-environment/2023/03/15/exxon-pollution-lawsuit-baytown-texas/>

424 Court of Appeals for the Fifth Circuit, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation* (previously cited), pp. 15-16.

425 National Environmental Law Center, "Circuit Court rules against ExxonMobil a third time, upholds Clean Air Act penalty", 16 September 2022, <https://www.nelc.org/news/circuit-court-rules-against-exxonmobil-a-third-time-upholds-record-clean-air-act-penalty/>

426 Court of Appeals for the Fifth Circuit, *Environment Texas, Sierra Club vs ExxonMobil Corporation* (previously cited), p. 5.

427 National Environmental Law Center, "Exxon seeks to undermine citizen suits via 'en banc' rehearing", 16 February 2023, <https://www.nelc.org/news/exxon-seeks-to-undermine-citizen-suits-via-en-banc-rehearing/>



THE UN GUIDING PRINCIPLES STATE THAT

REMEDIES FOR CORPORATE HUMAN RIGHTS HARMS MAY INCLUDE APOLOGIES, RESTITUTION, REHABILITATION, FINANCIAL OR NON-FINANCIAL COMPENSATION AND PUNITIVE SANCTIONS, AS WELL AS THE PREVENTION OF HARM.

The Harris County Attorney's Office can file civil cases on behalf of Harris County against petrochemical companies for pollution violations. However, the state legislators have passed a series of laws that increasingly limits local government's ability to hold industry to account.⁴²⁸ Christian Menefee, the Harris County Attorney, described one such law that requires his office to give notice to the state of Texas in advance of filing an enforcement action; if the state then decides to take the case, local government can no longer pursue it. Menefee said: "it allows them to effectively take the case from us. And what we've seen is that for the high-profile cases, that's what they do." He added: "And the industry knows that the state's going to settle the case for pennies on the dollar, because they always do, right? So, it's emboldened industry and inhibits our ability to protect these communities."⁴²⁹ In 2021, Harris County settled its case against ITC in connection to the 2019 Deer Park fire for US\$900,000.⁴³⁰ According to Menefee, the settlement could have been higher if the state had not taken parts of the case by filing a lawsuit of its own.⁴³¹

7.5 LACK OF REMEDY AND REDRESS FOR HARMS

The UN Guiding Principles states that remedies for corporate human rights harms may include apologies, restitution, rehabilitation, financial or non-financial compensation and punitive sanctions, as well as the prevention of harm – for example through guarantees of non-repetition. Fenceline communities are repeatedly and continually exposed to petrochemical pollution and disasters but, despite these harms, they are denied effective remedy. The perpetrators deny culpability and are able to evade accountability. Fines are rarely enforced and, when they are, the money does not go directly to communities and in some cases is even channelled into pro-industry schemes.

428 Interview in person with Christian Menefee, Harris County Attorney, 10 May 2023, Houston, Texas.

429 Interview in person with Christian Menefee, Harris County Attorney, 10 May 2023, Houston, Texas.

430 Office of the Harris County Attorney, "Harris County attorney Christian D. Menefee secures \$900,000 settlement from ITC due to an explosion at its Deer Park Facility", 27 April 2021, <https://cao.harriscountytexas.gov/Newsroom/harris-county-attorney-christian-d-menefee-secures-900000-settlement-from-itc-due-to-an-explosion-at-its-deer-park-facility>

431 Interview in person with Christian Menefee, Harris County Attorney, 10 May 2023, Houston, Texas.

To overcome evidentiary barriers that hinder redress, many interviewees stressed the need for increased air monitoring in both communities and at company fencelines. Brandt Mannchen is a former investigator for the City of Houston Bureau of Air Quality Control. He told Amnesty International:

“One of the things I always wanted is plant monitoring so at the fenceline you would know what’s leaving the property. Because that’s always the problem, identifying the property where the pollution’s coming from. Is it leaving this property or that property? And what is it?”⁴³²

Instead of providing meaningful remedy for the harms caused by their operations, residents shared that the companies routinely organize events and giveaways in some communities, from Easter egg hunts and parades to giving away school supplies and turkeys at Thanksgiving. Many felt that these initiatives are corporate greenwashing. Carolyn Stone said:

“These companies are profiting off our health. And they may give to the schools and do this or that, but we’re suffering the illness, it’s our burden. We pay with our health... I personally think these companies should give a percentage of their profits every year back [to the community]. Or they should be providing at least free healthcare, free screening, for all the cancers, heart issues, they should be responsible for that.”⁴³³

While recognizing the harms the petrochemical industry posed to them, many community members acknowledged that the industry supports local livelihoods and therefore did not desire its immediate shutdown. At a minimum, most interviewees said petrochemical companies should take steps to make their operations safer to communities. Many said the companies should compensate local communities for the harms they face, for example by funding healthcare provision. In the longer-term, some community members acknowledged the need to transition away from fossil fuels in a way that supports local communities and workers reliant on the petrochemical industry to secure alternative employment.

432 Interview in person with Brandt Mannchen, former air pollution investigator for the City of Houston, 5 May 2023, Baytown, Texas.

433 Interview in person with Carolyn Stone, community member and advocate, 4 May 2023, Channelview, Texas.

8. FAILURE OF COMPANIES TO RESPECT HUMAN RIGHTS

This chapter examines and assesses the operating practices of each of the four petrochemical companies included in this report against international business and human rights standards. While not solely responsible for all industrial pollution along the Ship Channel, the four companies contribute to the pollution and have a history of repeated non-compliance with state and federal clean air and clean water laws.

In September 2023, Amnesty International wrote to the four companies and asked them questions about their operations and non-compliance, human rights and environmental due diligence and actions taken to address and remedy adverse impacts resulting from their operations. Responses from ExxonMobil, LyondellBasell and Shell are incorporated in this section of the report; the full responses can be found in Annex 1. At the time of publication, ITC did not respond.

8.1 EXXONMOBIL

According to its website, the ExxonMobil Baytown Complex is one of the largest integrated refining and petrochemical complexes in the world. Comprised of three facilities, the Baytown Refinery began operations in 1920, the Chemical Plant started up in 1940, while the Olefins Plant has been in operation since 1979.⁴³⁴ ExxonMobil states it does not have a standalone human rights policy or statement but it “addresses human rights through the collective of its policies and practices”.⁴³⁵ In its 2022 sustainability report, the company articulated its “commitment to respecting human rights” and that its policies and practices “incorporate elements” of the UN Guiding Principles, including “commitments, due diligence and access to remedy.”⁴³⁶ The company’s Standards of Business Conduct states its policy is to “identify and evaluate health risks related to its operations that potentially affect its employees, contractors or the public” and “implement programs and appropriate protective measures to control such risks”.⁴³⁷ On its website, the company says the “ExxonMobil Baytown Complex takes safety and environmental commitment very seriously and is committed to running safe and environmentally responsible operations.”⁴³⁸

This report has summarized just a few of the many incidents where both routine and unplanned releases at the Baytown facility have led to adverse impacts on workers, communities and the environment. In some cases, ExxonMobil has been found liable for the harms. As described earlier, in February 2023 a jury found ExxonMobil responsible for causing the July 2019 explosion at its Baytown Olefins Plant and awarded almost US\$29 million in damages to compensate five workers injured during

434 ExxonMobil, “Baytown Operations”, <https://corporate.exxonmobil.com/locations/united-states/baytown-operations> (accessed on 2 August 2023); ExxonMobil, “Baytown Olefins Plant”, 2021, <https://corporate.exxonmobil.com/-/media/Global/Files/Locations/United-States-operations/Baytown/Baytown-Olefins-Plant-2021.pdf>

435 ExxonMobil, *Slavery and Human Trafficking Statement for Financial Year 2021*, 2021, https://www.exxonmobil.co.uk/-/media/unitedkingdom/files/slavery-and-human-trafficking-statements/2021/exxonmobil-finance-company-ltd_2021-slavery-signed-statement.pdf

436 ExxonMobil, “Respecting human rights”, 15 December 2022, <https://corporate.exxonmobil.com/news/reporting-and-publications/sustainability-report/social/respecting-human-rights#Approach>

437 ExxonMobil, *Standards of Business Conduct*, April 2017, https://corporate.exxonmobil.com/-/media/global/files/who-we-are/standards-of-business-conduct_apr.pdf, p. 12.

438 ExxonMobil, “Baytown Complex: Company Profile 2022”, <https://corporate.exxonmobil.com/-/media/global/files/locations/united-states-operations/baytown/baytown-complex-2022-fact-sheet.pdf> (accessed on 4 August 2023).

the incident.⁴³⁹ During the discovery process for trial, the plaintiffs' lawyers found an ExxonMobil internal memo from 1995 acknowledging the presence of a popcorn polymer, a hazardous substance that can accumulate and lead to ruptures, in the tower that would blow up decades later.⁴⁴⁰ In a statement the law firm said:

“Despite this knowledge, however, evidence revealed that ExxonMobil did nothing to implement safety practices to avoid the explosion or reduce its chances of happening. Further, evidence revealed ExxonMobil withheld knowledge of these risks and never warned the plaintiffs, or any of the other plant workers that have filed lawsuits against the company for injuries.”⁴⁴¹

In the citizen suit against ExxonMobil regarding its Baytown operations mentioned earlier, the courts concluded that the company benefited from noncompliance to the value of more than US\$14 million because the company delayed implementation of four emission-reducing projects mandated by a 2012 agreement between ExxonMobil and state regulators.⁴⁴²

ExxonMobil continues to release large volumes of unauthorized pollution from its Baytown operations. Analysis of TCEQ records show that the three facilities comprising the ExxonMobil Baytown Complex combined reported 1,013 air emissions events where pollution exceeded permitted levels in the last 20 years, including 77 since 2020.⁴⁴³ While the plant has failed to take adequate steps to address its track record of polluting communities and the environment, the plant continues to expand; in 2018, operations commenced at a newly added ethane cracker that supplies ethylene feedstock to the company's plastics plant in Mont Belvieu.⁴⁴⁴ In September 2023, two new chemical production units began operations, the result of a US\$2 billion expansion of the Baytown Complex.⁴⁴⁵

Despite being presented with evidence to the contrary, ExxonMobil stated in a response to Amnesty International that it complies “with all applicable governmental laws and regulations” and it has a “corporate-wide commitment to... upholding respect for human rights” in its operations.⁴⁴⁶

439 Mycah Hatfield, “2019 Baytown ExxonMobil explosion victim feels only ‘some’ relief after nearly \$30M verdict”, 22 February 2023, ABC13 Eyewitness News, <https://abc13.com/exxonmobil-explosion-baytown-2019-chemical-plant-olefins/12856110/>

440 In a statement following the verdict, ExxonMobil said it “operate[s] to the highest standards to safeguard the health and safety of our workers” and that it intended to appeal. See: ABC13 Houston, “2019 Baytown ExxonMobil explosion victim feels only ‘some’ relief after nearly \$30M verdict”, 22 February 2023, <https://abc13.com/exxonmobil-explosion-baytown-2019-chemical-plant-olefins/12856110/>

441 Abraham Watkins, “Abraham Watkins obtains a \$28,591,000 verdict against ExxonMobil for Baytown 2019 chemical plant explosion”, 21 February 2023, <https://www.abrahamwatkins.com/firm-news/abraham-watkins-obtains-a-28591000-00-verdict-against-exxonmobil-for-baytown-2019-chemical-plant-explosion/>

442 United States Court of Appeals for the Fifth Circuit, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation; ExxonMobil Chemical Company; ExxonMobil Refining; Supply Company*, 30 August 2022, pp. 15-16.

443 TCEQ, “Air Emission Event Report Database” (search results from 1 August 2003 to 1 August 2023, excluding routine emissions and excess opacity events. Opacity is a measure of how much light is blocked by a release of particulate matter.)

444 ExxonMobil, “ExxonMobil starts up new ethane cracker in Baytown, Texas”, 26 July 2018, https://corporate.exxonmobil.com/news/news-releases/2018/0726_exxonmobil-starts-up-new-ethane-cracker-in-baytown-texas

445 ExxonMobil, “ExxonMobil expands chemical production at Baytown”, 19 September 2023, https://corporate.exxonmobil.com/news/news-releases/2023/0919_exxonmobil-expands-chemical-production-at-baytown

446 ExxonMobil Baytown Area letter to Amnesty International, 4 October 2023. The full letter is in Annex 1.

8.2 LYONDELLBASELL

The LyondellBasell Channelview Complex is owned and operated by Equistar Chemicals LP, LLC and Lyondell Chemical Company – both wholly owned subsidiaries of LyondellBasell Industries NV, a multinational company incorporated in the Netherlands. According to its website, LyondellBasell is “one of the largest plastics, chemicals and refining companies in the world” and its Channelview Complex, which began operations in 1957, is one of the largest petrochemical facilities on the Gulf Coast.⁴⁴⁷ LyondellBasell has a human rights policy that is “guided by common principles” found in human rights standards, including the UN Guiding Principles. It states, “we recognise that our operations impact the broader communities where we are located and seek to respect the human rights of all individuals that may be affected”.⁴⁴⁸ The company’s Code of Conduct states that “we meet and strive to exceed environmental standards in all of our operations”,⁴⁴⁹ while according to its 2022 Sustainability Report, the company was “committed to reducing emissions... and complying with all laws and the terms of our permits”.⁴⁵⁰ The Channelview Complex website states the company is “socially responsible”, meaning that it “operate[s] our facilities in a manner that protects people and the environment and preserves our world for future generations.”⁴⁵¹

Despite these commitments, LyondellBasell’s Channelview Complex has a history of non-compliance and of polluting communities and the environment. For example, in October 2021, LyondellBasell subsidiaries agreed to pay US\$3.4 million in civil penalties to resolve violations of the Clean Air Act, including at the Channelview Complex, involving thousands of tons of illegal emissions of hazardous air pollutants and greenhouse gases. The agreement settled an EPA complaint that stated the facilities had “fail[ed] to adhere to good air pollution control practices”, which resulted in the unauthorized pollution.⁴⁵²

Analysis of TCEQ records show that the two facilities within the LyondellBasell Channelview Complex reported 463 emissions events where air pollution exceeded its permitted levels in the last 20 years, including 61 since 2020.⁴⁵³ For example, loss of steam to Equistar Chemicals LP’s olefins units 1 and 2 on 12 January 2023 led to a leak lasting over 101 hours, releasing over 88,000 pounds of pollution, including 1,3 butadiene, benzene, ethylene and toluene.⁴⁵⁴ Residents noted the black smoke visible from the complex that day. In its response to Amnesty International, LyondellBasell said: “We recognise our operations impact the broader communities where we are located, including at our Channelview Complex, and seek to respect the human rights of all individuals that may be affected.”⁴⁵⁵ It added: “We strive to conduct our business in a manner that protects the environment and provides for the safety and health of our employees, contractors, customers and the public.”⁴⁵⁶

447 LyondellBasell, “Technology”, <https://www.lyondellbasell.com/en/products-technology/technology/> (accessed on 27 June 2023).

LyondellBasell, “Channelview complex”, <https://www.lyondellbasell.com/en/channelview-complex/> (accessed on 27 June 2023).

448 LyondellBasell, *Human Rights Policy*, 2021, <https://www.lyondellbasell.com/4922c5/globalassets/sustainability/policy/human-rights-policy.pdf>

449 LyondellBasell, *Code of Conduct*, <https://www.lyondellbasell.com/48d196/globalassets/about-us/code-of-conduct/code-of-conduct-english.pdf>

450 LyondellBasell, *Unlocking Possibilities, 2022 Sustainability Report*, 2022, <https://www.lyondellbasell.com/498cad/globalassets/sustainability/2022-lyb-sustainability-report.pdf>

451 LyondellBasell, “Our Sustainability Approach”, <https://www.lyondellbasell.com/en/channelview-complex/sustainability/> (accessed on 3 September 2023).

452 *United States of America v. Equistar Chemicals, LP; LyondellBasell Acetyls, LLC; and Lyondell Chemical Co.*, Complaint, 13 October 2021, https://www.justice.gov/d9/press-releases/attachments/2021/10/14/lyondell_complaint_0.pdf

453 TCEQ, “Air Emission Event Report Database” (search results from 1 August 2003 to 1 August 2023, excluding routine emissions and excess opacity events. Opacity is a measure of how much light is blocked by a release of particulate matter.).

454 TCEQ, “Air Emission Event Report Database Incident 393665”, 10 May 2023, <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=393665>

455 LyondellBasell Industries letter to Amnesty International, 4 October 2023. The full letter is in Annex 1.

456 LyondellBasell letter to Amnesty International, 4 October 2023. The full letter is in Annex 1.

8.3 SHELL

Shell Deer Park Chemicals' ultimate parent company is the UK-based oil and gas company, Shell Plc.⁴⁵⁷ Operations at the facility began in 1929 and a chemical plant was added in the 1940s.⁴⁵⁸ Shell has acknowledged its responsibility to protect human rights in line with international standards in various documents and policies. Shell's General Business Principles specify five "areas of responsibility", including: "to support fundamental human rights in line with the legitimate role of business, and to give proper regard to health, safety, security and the environment." The company says its "Approach to Human Rights" is informed by international human rights standards including the UN Guiding Principles and states "human rights due diligence is embedded into our policies, enterprise risk management frameworks and processes."⁴⁵⁹

However, evidence presented in this report demonstrates the gap between Shell's human rights and sustainability commitments and practice at its Deer Park facility. For example, during the May 2023 fire at least seven contract workers at the facility sustained injuries, according to lawsuits filed against the company. According to Shell, the fire broke out when an olefins unit was undergoing routine maintenance.⁴⁶⁰ Shell's final report submitted to TCEQ details the release of over 820,000 pounds of airborne contaminants during the incident.⁴⁶¹ Amnesty International wrote to Shell and asked for information about its investigation into the cause of the fire; the company did not respond to this specific request.⁴⁶²

Analysis of TCEQ records shows that Shell Deer Park Chemicals has a history of non-compliance and reported 790 air emissions events in violation of its permitted levels in the past 20 years, including 19 since 2020.⁴⁶³ These records also show that the facility had repeated malfunctions at its olefins units prior to the May 2023 fire: Since 2022 the company had at least four malfunctions at one of its olefins units resulting in violations of permitted limits.⁴⁶⁴ For example, a malfunction at its olefins unit OP3 on 10 August 2022 due to "loss of high pressure boiler feed water to furnaces" resulted in emissions being released into the air for 103 hours and 55 minutes, including 2903 pounds of the carcinogen 1-3, butadiene, 30387.7 pounds of carbon monoxide and 8793.3 pounds of ethylene.⁴⁶⁵ In each of these cases the company invoked the "affirmative defense" and incurred no fines.⁴⁶⁶ At the very least this shows that malfunctions leading to hazardous pollution are common at the facility and at the worst, suggests repeated failure to make necessary repairs to prevent such issues from arising in the first place.

457 Since 2009 Amnesty International has been researching Shell's oil and gas operations in the Niger Delta, Nigeria, documenting how its negligence has resulted in a huge number of oil spills and delayed and inadequate clean-up operations, which have had detrimental impacts on the human rights of people living there. See Amnesty International, "No clean up, no justice: Shell's oil pollution in the Niger Delta", 18 June 2020, <https://www.amnesty.org/en/latest/news/2020/06/no-clean-up-no-justice-shell-oil-pollution-in-the-niger-delta/>

458 Shell USA, "About Shell Deer Park", <https://www.shell.us/about-us/projects-and-locations/deer-park-manufacturing-site/about-shell-deer-park.html> (accessed on 3 August 2023).

459 Shell Plc, "Shell's approach to Human Rights", https://www.shell.com/sustainability/communities/human-rights/_jcr_content/root/main/section/text_474563035_multi.stream/1677081972520/10086fb98079b6ddb9d1113545074c873fc67f3/shell-pp-human-right.pdf (accessed on 24 July 2023), p. 3.

460 TCEQ, "Air Emission Event Report Database Incident 400010", <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=400010> (accessed on 19 July 2023).

461 TCEQ, "Air Emission Event Report Database Incident 400010" (previously cited).

462 Shell response to Amnesty International, 2 October 2023. The full response is in Annex 1.

463 TCEQ, "Air Emission Event Report Database" (search results from 1 August 2003 to 1 August 2023, excluding routine emissions and excess opacity events. Opacity is a measure of how much light is blocked by a release of particulate matter.).

464 TCEQ, "Air Emission Event Report Database" (Incidents [374115](#), [374244](#), [385006](#) and [393217](#)) (accessed on 3 August 2023).

465 TCEQ, "Air Emission Event Report Database Incident 385006", 23 August 2022, <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=385006>

466 <https://www.texastribune.org/2023/05/10/texas-shell-refinery-fire-problems-tceq/>

In 2013, the company agreed to pay a US\$2.6 million civil penalty and spend at least US\$115 million to control harmful air pollution to resolve violations of the Clean Air Act at its Deer Park facility that resulted in excess emissions of VOCs and various hazardous air pollutants, including benzene.⁴⁶⁷ The company's repeated self-reported violations suggest the penalty has not acted as an incentive for it to significantly change its operating practices to align with regulation and respect for human rights. In its response to Amnesty International, Shell said: "We take seriously our responsibility to comply with federal and state regulations, including reporting unexpected emissions."⁴⁶⁸

8.4 ITC

ITC Deer Park is a 265-acre terminal and petrochemical storage facility owned by US company ITC, a subsidiary of Mitsui & Co. (U.S.A.), Inc., which is part of the Japanese conglomerate Mitsui & Co. Ltd.⁴⁶⁹ The facility became operational in 1972.⁴⁷⁰ ITC does not have a human rights policy but its "ESG Policy Statement" states it is "dedicated to environmental compliance and safe, responsible operations which safeguard all of our stakeholders and the community while protecting the environment".⁴⁷¹ Mitsui & Co. Ltd – ITC's parent company – has a human rights policy that applies to its "business activities in countries and regions around the world." The policy commits the company to "operate with respect for human rights" and implement human rights diligence and establishes its support for the UN Guiding Principles.⁴⁷²

Despite these commitments, ITC Deer Park's operations are not rights-respecting. Analysis of TCEQ records show that ITC Deer Park reported 49 emissions events where air pollution exceeded its permitted levels in the last 20 years, including 10 since 2020.⁴⁷³ For example, a malfunction of a pressure relief valve at Tank 25-2 on 16 July 2022 led to the release of 4,508 pounds of 1-3 butadiene in just 11 minutes.⁴⁷⁴ The March 2019 fire was one such event that adversely impacted thousands of residents in Deer Park and surrounding areas and the environment, as described earlier. To date, the company has not provided remedy to those affected. On 22 March 2019, the Texas Attorney General filed a lawsuit against ITC for air pollution released in violation of the Texas Clean Air Act.⁴⁷⁵ The case is still pending.

467 EPA, "Shell Deer Park Settlement", 10 July 2013, <https://www.epa.gov/enforcement/shell-deer-park-settlement>

468 Shell response to Amnesty International, 2 October 2023. The full response is in Annex 1.

469 ITC, "About Us", <https://www.ityerm.com/about-itc/> (accessed on 27 June 2023).

470 Offshore Technology, "Deer Park I Liquids Storage Terminal, US", 8 August 2022, <https://www.offshore-technology.com/marketdata/deer-park-i-liquids-storage-terminal-the-us/>

471 ITC, "Sustainability", <https://www.ityerm.com/sustainability/> (accessed on 27 June 2023).

472 Mitsui & Co., Ltd, "Human Rights Policy", https://www.mitsui.com/jp/en/release/2020/_icsFiles/afidfile/2020/08/06/en_200806_02.pdf (accessed on 24 July 2023).

473 TCEQ, "Air Emission Event Report Database" (search results from 1 August 2003 to 1 August 2023, excluding routine emissions and excess opacity events. Opacity is a measure of how much light is blocked by a release of particulate matter.). <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.searchForm&newsearch=yes>

474 TCEQ, "Air Emission Event Report Database Incident 383571", 28 July 2022, <https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=383571>

475 Attorney General of Texas, "AG Paxton files lawsuit against Intercontinental Terminals Company for violations of the Texas Clean Air Act", 22 March 2019, <https://www.texasattorneygeneral.gov/news/releases/ag-paxton-files-lawsuit-against-intercontinental-terminals-company-violations-texas-clean-air-act>

In July 2023, the US Chemical Safety and Hazard Investigation Board (CSB) concluded its investigation into the fire. Upon issuing its final report, the CSB said “the cause of the incident was linked to a number of safety shortcomings” at the facility. The CSB determined “the cause of the incident was the release of flammable butane-enriched naphtha vapor from the failed Tank 80-8 circulation pump, which accumulated in the area and ignited, resulting in a fire”. In response to the findings, the CSB Chairperson, Steve Owens, said:

“This was a very large and disruptive event. The fire burned for three days, caused over 150 million dollars in property damage at the facility, put the surrounding community potentially at risk, and significantly impacted the environment. This disastrous event could have been prevented if proper safeguards had been in place at the facility.”⁴⁷⁶

Since the 2019 fire, the company continues to operate and violate its permit limits, indicating that it has not taken sufficient measures to ensure its operations are compliant. The TCEQ database lists 420 violations of environmental regulations by ITC Deer Park dating back to 2012, including 137 notices of violation after the 2019 fire.⁴⁷⁷ At the time of publication, ITC has not responded to Amnesty International.⁴⁷⁸

8.5 ASSESSMENT UNDER THE UN GUIDING PRINCIPLES

Upon documentation and review of the available evidence, Amnesty International has concluded that the operations of petrochemical companies along the Houston Ship Channel harm the rights to a clean healthy and sustainable environment, health, life, equality and non-discrimination, access to information and participation. Furthermore, evidence presented in this report demonstrates that petrochemical companies subject to this research are contributing to – and in some instances causing – a range of human rights abuses, in addition to harms to the environment and climate. As noted earlier, the UN Guiding Principles establish that if a business is causing, contributing to, or may contribute to, an adverse impact, it should take appropriate measures to cease, prevent, and remedy its contribution.

Analysis of the four companies included in this report show they have repeatedly released large volumes of harmful pollutants – often in violation of the Clean Air Act and Clean Water Act – over several decades. Even when companies operate in adherence with their permits, target cancer risk levels used by TCEQ to establish maximum pollutant levels in air permitting are often not stringent enough to be protective of human health.⁴⁷⁹ According to environmental groups which have filed a lawsuit against the EPA, the agency has “turned a blind eye” while TCEQ has “routinely violated the federal Clean Air Act by rubber-stamping weak permits”.⁴⁸⁰ Environmental groups have also petitioned the EPA to “correct TCEQ’s systemic refusal to conduct any environmental justice review in its air permitting program.”⁴⁸¹

476 CSB, “CSB releases final report on 2019 massive tank farm fire at the Intercontinental Terminals Company facility in Deer Park, Texas”, 6 July 2023 <https://www.csb.gov/csb-releases-final-report-on-2019-massive-tank-farm-fire-at-the-intercontinental-terminals-company-facility-in-deer-park-texas/>

477 Texas Open Data Portal, Texas Commission on Environmental Quality – Notices of Violation (NOV), <https://data.texas.gov/dataset/Texas-Commission-on-Environmental-Quality-Notices-/mwzi-gyw7/data> (accessed on 9 June 2023).

478 Amnesty International sent letters to ITC on 20 September 2023 and 17 November 2023.

479 Written comments to TCEQ jointly submitted by Earthjustice and other civil society groups, 3 October 2023, (previously cited); Written comments to TCEQ submitted by Dr. Latrice Babin, Executive Director, Harris County Pollution Control Services, 2 October 2023 (previously cited).

480 Texas Tribune, “Environmental groups allege Texas rubber-stamped industrial plants’ pollution – and that the EPA looked the other way”, 4 January 2021, <https://www.texastribune.org/2021/01/04/EPA-pollution-lawsuit-Texas/>.

481 Environmental Integrity Project, “Groups petition EPA to address longstanding environmental justice violations in Texas’ Air Permitting Program”, 28 June 2022, <https://environmentalintegrity.org/news/groups-petition-epa-to-address-longstanding-environmental-justice-violations/>

The UN Guiding Principles make clear that where national laws fall below the standard of internationally recognized human rights, companies should respect the higher standard.⁴⁸²

Irresponsible business practices that contribute to harms include improper flaring, poor maintenance, failure to fix or replace faulty equipment, failure to implement stringent pollution controls and other preventive measures and delaying necessary investments in infrastructure. As noted throughout the report, in some cases the fault of these companies has been determined in legal judgements and settlements. Many of these practices have benefited the companies at the expense of those adversely impacted. The industry's lack of transparency and ineffective warning systems have further put fenceline communities at risk of harm.

Companies are directly responsible for the pollution emitted by their operations and in incidences of large releases that have immediate adverse impacts on fenceline communities and workers, they are directly responsible for causing these harms. While it is impossible to disaggregate the harms caused by the multiple sources of pollution along the Houston Ship Channel, these four companies are contributors to the cumulative pollution that harms residents, the environment and climate. When considering large releases of pollution from these facilities, it is highly probable in many of these incidences that, even on their own, they have caused negative human rights impacts. Smaller releases are also likely to cause harm however communities may not immediately, or ever, be aware of the cause.

Another factor considered in Amnesty International's analysis is whether the companies knew about or could have reasonably foreseen the harms caused by their operations. Petrochemical facilities are required to identify residential populations that could be harmed by worst-case and alternative release scenarios. The companies are also required to report self-monitored emissions inventories and releases of pollution that exceed permitted levels. Combined, this demonstrates that it is undeniable that the petrochemical companies operating along the Ship Channel know of the harms their operations have caused to fenceline communities. The frequency of excess emissions events over several years show that companies can reasonably foresee violations will continue if they do not take measures to make their operations safer.

When companies release pollution that exceeds their permit limits, they routinely invoke the affirmative defense by claiming the emissions event was "unplanned and unavoidable", which enables them to avoid accountability year after year.⁴⁸³ This creates an incentive for polluters to delay investing in measures necessary to prevent equipment failures and breakdowns that lead to pollution releases above permitted levels. These delays directly benefit the companies, at the expense of fenceline communities. For example, in the citizen air pollution lawsuit against ExxonMobil, the courts concluded that the company benefited from noncompliance to the value of more than US\$14 million because it delayed implementation of emission-reducing projects.⁴⁸⁴ Ahead of extreme weather forecasts, many companies delay shutting down early (which would release less air pollution) to maximize production. Responsible companies should not directly profit from human rights abuses and where they do, they should consider whether the benefits they receive should go directly to the victims.⁴⁸⁵

482 UN Guiding Principles, Principle 11 including Commentary. Also see: OHCHR, *Frequently asked Questions about the Guiding Principles on Business and Human Rights*, 2014, p. 7.

483 See reports submitted to TCEQ, "Air Emission Event Report Database", https://www2.tceq.texas.gov/oce/eeer/#skip2main_area

484 United States Court of Appeals for the Fifth Circuit, *Environment Texas Citizen Lobby, Incorporated; Sierra Club vs ExxonMobil Corporation; ExxonMobil Chemical Company; ExxonMobil Refining; Supply Company*, 30 August 2022, pp. 15-16.

485 Business for Social Responsibility, *Seven Questions to Help Determine When a Company Should Remedy Human Rights Harm under the UNGPs*, January 2021, p. 9.

8.6 CONDUCTING DUE DILIGENCE

To meet their responsibility to respect human rights, companies should have in place an ongoing and proactive human rights due diligence process to identify, prevent, mitigate and account for how they address their impacts on human rights.⁴⁸⁶ In the case of the petrochemical companies operating along the Houston Ship Channel, the companies should be practicing an ongoing due diligence to identify whether any of their operations are having negative human rights, environmental or climate impacts. As the adverse impacts associated with the petrochemical industry are well known and documented, petrochemical companies' due diligence should include ongoing and independent health and environmental monitoring, in addition to human rights and environmental impact assessments. Assessments of human rights impacts should apply an intersectional lens to consider how different groups are impacted differently or are at heightened risk. Assessments and monitoring should be made publicly available. Due diligence should also undertake meaningful and ongoing engagement with fenceline communities, workers and other relevant stakeholders, such as trade unions and local civil society organizations.

Petrochemical companies' due diligence should continue even after the products have left their facilities, for example they should identify risks when products are awaiting transit in fixed facilities or barges. This should take into account where and how the products are being stored, loaded and unloaded.

If the companies identify adverse impacts of their operations, they need to cease the harmful activity. They also need to be transparent about their due diligence practices, providing information about the nature of their operations, any harms they are linked to, and the steps that the companies take to end or mitigate the harm, and provide remedy.

Amnesty International asked the four companies what due diligence policies and processes they have in place to ensure that their operations do not cause human rights abuses. In their responses ExxonMobil, Shell and LyondellBasell provided general statements reaffirming their commitments to respecting human rights but did not provide detailed information on what their due diligence actually entails. For example, LyondellBasell simply wrote that it “recognise[s] our operations impact the broader communities where we are located... and seek to respect the human rights of all individuals that may be affected.”⁴⁸⁷ It added it has “a robust Operational Excellence management system designed to identify and manage potential environmental and safety risks”, while it also undertakes “internal audits and thoroughly investigate[s] incidents and near misses and take corrective action to prevent reoccurrence,” referring to its 2022 sustainability report.⁴⁸⁸ In response to Amnesty International's findings, LyondellBasell added: “We continuously evaluate our overall approach to sustainability, including human rights, human rights due diligence, and environmental justice.”⁴⁸⁹ ExxonMobil wrote that, “community members with immediate concerns can call the Site Shift Superintendent's Office where clerks are on-call 24/7. The concerns or complaints are tracked for follow-up.”⁴⁹⁰ Shell wrote: “We have comprehensive safety policies and procedures at Deer Park and train our workforce to minimize risk, respond to, and mitigate the potential impact of any incident.”⁴⁹¹ At the time of publication, ITC Deer Park did not respond.

Petrochemical companies along the Houston Ship Channel operate in an inherently risky environment. If the four companies subject to this research had conducted due diligence in accordance with the UN Guiding Principles, they would have identified the risks their operations pose to human health and the environment, including contribution to climate change. Having identified these well known risks, the companies should have taken immediate steps to address the high-risk areas of their business, for

486 As set out by the UN Guiding Principles and OECD Guidelines.

487 LyondellBasell Industries letter to Amnesty International, 4 October 2023. The full letter is in Annex 1.

488 LyondellBasell Industries letter to Amnesty International, 4 October 2023. The full letter is in Annex 1.

489 LyondellBasell letter to Amnesty International, 1 December 2023. The full letter is in Annex 1.

490 ExxonMobil Baytown Area letter to Amnesty International, 4 October 2023. The full letter is in Annex 1.

491 Shell response to Amnesty International, 2 October 2023. The full response is in Annex 1.

example, by making the necessary infrastructure investments and business decisions to make their operations safer and increasing transparency to benefit fenceline communities, while at the same time making preparations to achieve net zero emissions and phasing out operations that rely on fossil fuels.

8.7 REMEDIATION

Companies should remediate any human rights abuse to which they have caused or contributed. Remedy should include guarantees of non-repetition as well as satisfaction, compensation and other measures of reparation as appropriate to the circumstances and the wishes of those affected. Companies operating along the Houston Ship Channel should remedy the harms caused by their operations, including accumulating harm caused by emissions over time. This includes taking preventative measures and making necessary investments to ensure emissions do not exceed permitted levels and operations are rights-respecting. Companies should proactively provide information to communities about their operations and planned activities that may cause disruption and adverse impacts. Companies should also establish and allocate funds to a health program that provides medical monitoring and treatment for fenceline communities. The four companies included in the report did not respond to questions relating to this issue.⁴⁹²

COMMUNITY RECOMMENDATIONS⁴⁹³



COMPENSATION

Compensation: penalties to go to communities and grassroots organisations; investment in underinvested communities; healthcare provision; immediate and ongoing clean ups in response to spills; compensation for damage to homes; retrofit homes so residents can safely shelter-in-place during chemical emergencies.



END TO CONTINUING HARMS

End to continuing harms: safer operating practices by petrochemical facilities and investment in safer technologies; better enforcement and larger penalties to incentivise compliance; stricter limits on pollution; environmental justice analyses to be part of the permitting process; further research on the distribution of exposure to petrochemical pollution and the cumulative health impacts experienced by fenceline communities; creation of buffer zones to separate petrochemical facilities from communities; halt further expansion of the petrochemical industry; phase out fossil fuels in a way that supports workers and communities.



ACCESS TO INFORMATION

Access to information: accessible and effective emergency notification systems to alert communities to releases and provide real time information in multiple languages; increased air monitoring in communities, especially those closest to and downwind from facilities, and make this information easily accessible.

⁴⁹² Amnesty International wrote to the four companies in September 2023 and asked them what steps they had taken to guarantee non-repetition and provide remedy for health and environmental impacts resulting from their operations. Responses can be found in Annex 1.

⁴⁹³ Recommendations compiled from Amnesty International interviews and may not be representative of all fenceline community members.



An aerial view of the petrochemical industry and vessels along the Houston Ship Channel. © 2011 Houston Chronicle via Getty Images (Photographer: by Smiley N. Pool)

9. PETROCHEMICAL EXPORTS TO EUROPE

The Houston Ship Channel's location on the Gulf of Mexico means petrochemicals produced in the region are easily shipped across the world, including to Europe. Europe is a major market for US petrochemical products, although it has significant production capacity of its own.⁴⁹⁴ In 2022, Europe received 78% of US exports of ethylene.⁴⁹⁵ Belgium, Germany and the Netherlands are among the top EU ethylene importers.⁴⁹⁶ The opaque nature of the petrochemical supply chain makes it difficult to identify downstream customers, but these products end up in plastic bottles, containers, bags and straws across Europe.⁴⁹⁷ Under new EU corporate accountability legislation, EU domiciled petrochemical companies and EU-based buyers of Houston Ship Channel petrochemical products will be required to conduct due diligence to identify, address and remediate their human rights, environmental and climate impacts.

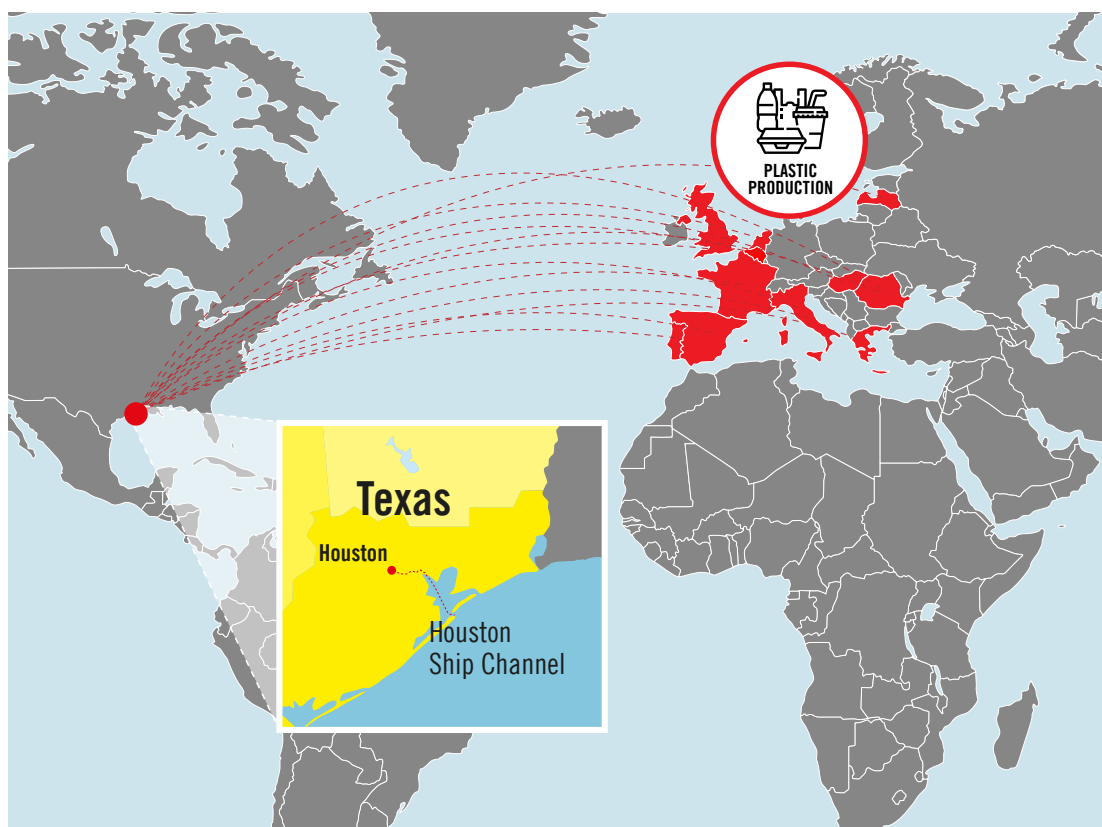
494 Center for International Environmental Law, *The Transatlantic Petrochemical Trade is Undermining Europe's Climate Plastics Policies*, 2021, <https://www.ciel.org/wp-content/uploads/2021/12/The-Transatlantic-Petrochemical-Trade-is-Undermining-Europes-Climate-Plastics-Policies.pdf>, p. 3; The Netherlands, Belgium and Germany are among the largest petrochemical producers in Europe.

495 S&P Global, "Europe receiving majority of US ethylene exports: Navigator", 19 August 2022 <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/petrochemicals/081922-europe-receiving-majority-of-us-ethylene-exports-navigator>

496 IndexBox, *EU – Ethylene – Market Analysis, Forecast, Size, Trends and Insights*, 1 December 2023, <https://www.indexbox.io/store/eu-ethylene-market-analysis-forecast-size-trends-and-insights/>

497 The wide array of petrochemical products and the different classification systems used by the USA and Europe to identify traded products make it even more difficult to trace product flows. Moreover, many of the petrochemicals that are exported from Houston to Europe are also produced in Europe or re-exported, meaning that it is difficult to track the origin and final destination of any particular petrochemical product.

Analysis of shipment records between January 2021 and June 2023 reveals that all three petrochemical producers named in this report – ExxonMobil, LyondellBasell and Shell – export petrochemical products to Europe. It is important to note that only shipments by these companies registered as leaving from Houston, Texas, were included in the analysis. From the data it cannot be said for sure whether these products in fact come from the selected complexes as the address of the shipper usually refers to a more generic administrative office. However, the companies whose operations were assessed have two or fewer complexes in the Houston area. Amnesty International asked the four companies about the destinations of their exports and the ultimate consignees of their shipments: at the time of publication, they did not provide this information. Buyers of petrochemical goods produced along the Houston Ship Channel should be conducting due diligence regardless of whether those products are purchased from a facility included in this report due to the inherent risks associated with the industry in the region.



Petrochemical exports to Europe

ExxonMobil exports a large variety of products from the Port of Houston to European destinations. In the period analysed, the largest share was accounted for by fuels, with crude oil totalling 8.5 million metric tons. The company exported 208,507 tons of plastics resins, with Belgium as the biggest recipient, followed by Hungary, Spain and Italy. Recipients of smaller volumes of plastics resins from ExxonMobil include Greece, the United Kingdom, Romania, Latvia, Portugal and France. The Netherlands and Belgium were the largest recipients overall of petrochemical exports from ExxonMobil. Both countries have large petrochemical complexes which have the capacity to directly receive shipments. Facilities owned by ExxonMobil and its subsidiaries are likely recipients of shipments. In Belgium, ExxonMobil operates the Antwerp polymers plant, which produces

polyethylene (the world's most widely used plastic) and other polymers.⁴⁹⁸ In Rotterdam, ExxonMobil has a refinery and three other plants in the port area.⁴⁹⁹

LyondellBasell's petrochemical shipments to Europe were all destined for Belgium, the Netherlands and France. There is a high likelihood that they are destined for the company's own manufacturing sites in these three countries. Shipment records show shipments of some petrochemical products to Fos-sur-Mer in France, where LyondellBasell has its Fos Caban plant that produces, among other things, propylene oxide, tertiary butyl alcohol and propylene glycols.⁵⁰⁰ In the Netherlands, the Maasvlakte, Moerdijk, and Botlek sites are located close to the Port of Rotterdam.⁵⁰¹

The largest European recipients of chemical exports from Shell Deer Park Chemicals were the Netherlands, Belgium, France and Italy. The largest recipient of ethylene exports from this facility was the Netherlands, followed by France. In the Netherlands, Shell's Pernis and Moerdijk sites are close to the Port of Rotterdam.⁵⁰²

Petrochemical products stored by ITC Deer Park, are shipped to customers around the world. The company has a terminal in the Port of Antwerp, ITC Rubis Terminal Antwerp NV.⁵⁰³ While a definitive trade link between ITC Deer Park and the ITC Rubis Terminal could not be established, ITC's parent company, Mitsui & Co., stresses the importance of its "strong international network of terminals" that includes ITC Deer Park and ITC Rubis Terminal.⁵⁰⁴

9.1 THE NEED TO CONDUCT DUE DILIGENCE

Petrochemical products from companies subject to this research are entering the supply chain of companies in Europe. On this basis, companies buying petrochemical products from the US need to be conducting human rights due diligence to identify whether petrochemical products from the four companies named in this report are entering their supply chain. The requirement to conduct human rights due diligence extends to all companies in the petrochemical industry. Companies purchasing petrochemical products in Europe and elsewhere should map their value chains and understand the human rights, environmental and climate risks that they may be directly linked to, through their relationship with suppliers and business partners along the Houston Ship Channel. As per the UN Guiding Principles, if a business is directly linked to an adverse human rights impact through a business partnership, it should exercise its leverage to mitigate the negative impact to the greatest extent possible and in certain circumstances, disengage from the business partnership. In cases where a business must cease its contribution to human rights, or in cases where a business must disengage from a business partnership, the withdrawal must be conducted "responsibly". According to the UN Guiding Principles, "responsible" withdrawal requires that companies identify, mitigate and prevent the potential and actual adverse impacts of its disengagement.

498 ExxonMobil, "Antwerp polymers plant", 22 July 2019, <https://www.exxonmobil.be/en-be/company/locations/belgium/antwerp-polymers-plant> (accessed on 14 July 2023).

499 ExxonMobil, "Locations: Netherlands", <https://www.exxonmobil.be/en-be/company/locations/netherlands> (accessed on 14 July 2023).

500 LyondellBasell, "Fos-sur-Mer Caban Plant", <https://www.lyondellbasell.com/en/fos-sur-mer-plant/> (accessed on 14 July 2023).

501 LyondellBasell, "LyondellBasell Around the World", <https://www.lyondellbasell.com/en/utilities/locations> (accessed on 14 July 2023).

502 Shell, "Manufacturing Locations", <https://www.shell.com/business-customers/chemicals/manufacturing-locations.html> (accessed on 21 August 2023).

503 ITC Rubis, "Who we are", <https://www.itcrubis.com/company/> (accessed on 14 July 2023).

504 Mitsui & Co., "ITC Rubis Terminal Antwerp (affiliate company)", https://www.mitsui.com/be/en/business/1216500_9228.html (accessed on 7 August 2023).



THE UN GUIDING PRINCIPLES

IF A BUSINESS IS DIRECTLY LINKED TO AN **ADVERSE HUMAN RIGHTS IMPACT** THROUGH A BUSINESS PARTNERSHIP, IT SHOULD EXERCISE ITS LEVERAGE TO MITIGATE THE NEGATIVE IMPACT TO THE GREATEST EXTENT POSSIBLE AND IN CERTAIN CIRCUMSTANCES, DISENGAGE FROM THE BUSINESS PARTNERSHIP.

The broad range of harms that communities experience due to corporate actions along the Houston Ship Channel has implications for Europe, as both a recipient of petrochemical goods and where many multinational petrochemical companies operating along the Ship Channel are domiciled, including LyondellBasell. The EU is introducing corporate accountability legislation, the Corporate Sustainability Due Diligence Directive, which will require businesses operating in the EU to assess and address the human rights, environmental and climate risks and impacts in their own operations and throughout their value chain. Under this legislation, EU domiciled companies operating along the Houston Ship Channel will be required to conduct due diligence to identify, address and remediate their human rights and environmental impacts. They will also have an obligation to adopt and put into effect a transition plan for climate change mitigation. EU buyers of petrochemical goods produced along the Houston Ship Channel will also be required to conduct due diligence as outlined above.



*Petrochemical plants along the Houston Ship Channel are shown in the aftermath of Tropical Storm Harvey on 29 August 2017.
© Houston Chronicle via Getty Images (Photographer: Brett Coomer)*

10. CONCLUSION AND RECOMMENDATIONS

From the USA to Cambodia, Taiwan and beyond, a growing body of research reveals how human rights, the environment and climate are threatened by the petrochemical industry's toxic pollution.⁵⁰⁵ This report demonstrates how irresponsible business practices by petrochemical companies along the Houston Ship Channel contribute to a range of human rights, environmental and climate harms. The communities who live, work and go to school alongside this petrochemical cluster are impacted by decades of cumulative pollution from chemical fires, explosions, spills and routine releases of pollutants that exceed permitted levels. At continual risk of exposure to harmful chemicals in the air they breathe – putting their health and lives at risk – these communities are predominantly low-income and racialized, amounting to an egregious form of environmental racism. Their right to a clean, healthy and sustainable environment has been infringed upon to the extent that Amnesty International considers the Houston Ship Channel to be a “sacrifice zone”. The petrochemical industry's burgeoning expansion threatens to further undermine human rights, cause environmental destruction and exacerbate the climate crisis.

The US government is failing its duty to protect fenceline communities against human rights abuses by the petrochemical industry and hold the perpetrators accountable. The government must take urgent action to facilitate the enjoyment of human rights for all people along the Houston Ship Channel. To do so, the government needs to take immediate action to enforce compliance and effectively regulate the industry to put an end to the harms. As called for by the Durban Declaration and Programme of Action, the government should “consider non-discriminatory measures to provide a safe and healthy environment for individuals and groups of individuals victims of or subject to racism, racial discrimination, xenophobia and related intolerance”, including “to improve access to public information on health and environment issues”.⁵⁰⁶

The climate emergency is an unprecedented global human rights crisis. The US government needs to restrict further expansion of the petrochemical industry and implement a just transition away from fossil fuels by 2030 to ensure alignment with the Paris Agreement and prevent even worse impacts of climate change on the enjoyment of a wide range of human rights, including the rights to life, health, adequate housing, food, water and sanitation and to a clean, healthy and sustainable environment.

The petrochemical companies operating along the Houston Ship Channel, including ExxonMobil, Shell, LyondellBasell and ITC, must take steps to prevent further adverse impacts on communities and remedy the harms to which they have contributed. They must also undertake effective due diligence to identify, prevent, mitigate and account for negative human rights and environmental and climate change impacts resulting from their operations.

505 CIEL, The Center for Biological Diversity, and Earthworks, *Formosa Plastics Group; A Serial Offender of Environmental and Human Rights, A Case Study*, 2021, <https://www.ciel.org/reports/formosa-plastics-group-a-serial-offender-of-environmental-and-human-rights/>

506 World Conference Against Racism, Racial Discrimination, Xenophobia and Related Intolerance, The Durban Declaration and Programme of Action, para. 111.

This research adds further evidence to demonstrate the importance of strong corporate accountability legislation that includes mandatory and effective due diligence that requires companies to identify, address and remediate their human rights, environmental and climate impacts. Corporate accountability legislation is being developed in the EU and other jurisdictions around the world. In order to be truly effective, such legislation needs to recognize that human rights and environmental and climate harms are interlinked – as this research demonstrates – and therefore to address human rights, companies must simultaneously examine and address these impacts as part of their due diligence. Companies must also assess these impacts using an intersectional lens that considers gender and racial injustice among other hierarchies and systems of oppression, so that the disparate impacts faced by marginalized groups can be effectively addressed by human rights and environmental due diligence. Communities along the Houston Ship Channel and across the world struggle to access justice for corporate harms they face; addressing barriers to accessing justice is therefore a critical component of effective corporate accountability legislation.

RECOMMENDATIONS TO US AUTHORITIES

TO TCEQ

- Take immediate action to fully implement and enforce all federal and state environmental laws and regulations and ensure the industry and all related activities do not lead to human rights abuses and environmental harms. Enforce maximum penalties for all facilities that fail to adhere to permitted emissions limits. Issue a permit revocation warning to all facilities that fail to adhere to emissions limits to demand the immediate rectification of emissions-related equipment and modification of operating procedures. Initiate enforcement action to shut down facilities that repeatedly fail to adhere to emissions limits.
- Increase monitoring and unannounced inspections of all petrochemical facilities, prioritizing facilities in overburdened fenceline communities and areas that do not meet national ambient air quality standards. Follow up with enforcement as needed.
- Increase staffing and technological capacity to respond to and investigate pollution complaints promptly.
- Require all petrochemical plants to conduct continuous fenceline monitoring (using federal equivalent methods) if they use, produce, store or emit air toxics (for example, ethylene oxide, chloroprene, benzene, 1,3-butadiene, ethylene dichloride and vinyl chloride). Make the data publicly available in real-time and follow up with stringent enforcement as needed.
- Increase stationary and mobile air monitoring in fenceline communities and make this information publicly available and accessible to communities in real-time and in all relevant languages.
- Develop and implement an effective and accessible alert system for chemical releases and emergency response that provides communities with real-time updates. Make this alert system available in all languages relevant to fenceline communities.
- Proactively provide more information to communities about facilities, pollutants and their health risks (both short and long term). On at least a monthly basis, engage communities on the findings of monitoring, inspections and enforcement activities. Make information available in the languages most relevant to local communities.
- Stop granting permits for new and expanded petrochemical operations (including acquisitions of existing plants). For permit renewals, consider the company's history of compliance and mitigation of environmental injustices as identified by environmental justice screening.

- Conduct meaningful and proactive engagement with fenceline communities ahead of environmental decision making. In preparation for public meetings, conduct outreach to identify the languages most relevant to local communities. Ensure all materials, including notices, are translated accordingly and interpreters are familiar with industry-related terminology and able to provide culturally appropriate interpretation.
- Engage in transparent and timely communication with local officials, the EPA, and other entities involved in emergency coordination and the use of post-incident audits.

TO THE TEXAS LEGISLATURE

- Abolish loopholes within environmental regulations, such as the “affirmative defense” for unexpected emissions events.
- Rescind SB 471 and ensure TCEQ investigates and responds to environmental complaints made by fenceline community members, regardless of the frequency of their complaints.
- Pass legislation to ensure fines paid by polluting companies have tangible benefits for impacted communities and are earmarked for funds related to schooling, health monitoring and treatment, community clean-ups and other public goods.
- Pass legislation that incorporates environmental justice concerns, including the establishment of an environmental justice advisory panel at the state level engaged in, but not limited to, investigating cumulative environmental health impacts from petrochemical pollution, particularly cancer and reproductive health.
- Pass legislation to immediately halt further expansion of fossil-fuel based petrochemical operations. Ensure a rapid phase-out of the most emissions-intensive facilities and develop and implement a human rights-consistent plan to phase out all production and use of fossil fuels by 2030, in line with keeping the global temperature rise below 1.5°C (2.7°F) above pre-industrial levels. This plan must support workers reliant on fossil fuel production to secure alternative livelihoods that provide for sustainable and decent work.

TO HARRIS COUNTY AND CITY GOVERNMENT

- Increase staffing and technological capacity to respond to and investigate pollution complaints promptly.
- Coordinate city and county wide emergency notification systems to provide real time information and updates on chemical releases, available in all relevant languages and disseminated via multiple platforms (including mobile application, social media, email, automated dialling, mail and radio).
- Harris County Public Health should provide information to fenceline communities on emission spikes as part of their emergency preparedness and provide guidance for residents with asthma on how to manage symptoms during chemical emergencies.
- Ensure online complaint reporting forms are available in the most spoken languages in the city and Harris County.⁵⁰⁷ Arrange monthly multi-lingual and accessible community trainings (in-person and virtual) on emergency preparedness, including how to prepare to “shelter-in-place”.
- Require all community-industry partnership meetings, LEPC meetings and other public meetings on industry practices and safety measures to be made available and accessible online.

⁵⁰⁷ After English, the most spoken languages in Harris County are Spanish, Vietnamese, Chinese (including Mandarin, Cantonese), Arabic and Hindi. See: City of Houston, *Top 25 Languages Spoken in Houston*, 2021, <https://www.houstontx.gov/speakhouston/Top-25-Houston-Languages-2021.pdf>

- Organize community education trainings to provide proper guidance on how to properly file pollution complaints, particularly for noise and light pollution.
- Assist residents wishing to provide community collected pollution evidence (for example, through an equipment loan programme, making technical resources available, and providing residents with at-home kits, where appropriate).
- Harris County Attorney's Office should increase community education on ways to seek civil legal remedy for petrochemical industry-related harms and abuses against fenceline individuals/families and communities.

TO THE EPA

- Conduct an urgent review of TCEQ's performance and enforcement of the petrochemical industry. Where TCEQ is found not to be fully implementing and enforcing all federal laws, take corrective action, such as increasing oversight and engagement with permit applications from repeat violators, and consider limiting State environmental law enforcement authority.⁵⁰⁸
- Require facilities that release environmental pollution to adhere to their permitted emissions limits. Shutdown facilities in repeated non-compliance.
- Require all petrochemical plants to conduct continuous fenceline air monitoring (with federal equivalent methods) if they use, produce, store or emit air toxics (for example, ethylene oxide, chloroprene, benzene, 1,3-butadiene, ethylene dichloride and vinyl chloride). Make the data publicly available in real-time and follow up with stringent enforcement as needed.
- Ensure adherence to Title VI of the Civil Rights Act by holding local, county and state authorities accountable for discrimination that amounts to environmental racism, including in pollution causing projects and efforts to implement environmental justice initiatives. Require petrochemical facilities to demonstrate and make public efforts to address discrimination, environmental injustice and environmental racism to obtain Title V permit renewals, such as evidence of environmental clean-up, alert systems, permitting transparency, and so on. Require states to demonstrate adherence to Title VI of the Civil Rights Act and efforts to address discrimination that amounts to environmental racism in their State Implementation Plans. Follow up with enforcement as needed.
- In persistent cases of permitting non-compliance, Title VI violations, and TCEQ lack of enforcement, the EPA should inform and collaborate with the Department of Justice's Office of Environmental Justice regarding TCEQ's failure to enforce environmental laws and any concerns related to Title VI of the Civil Rights Act.

TO CONGRESS

- Call a hearing on the human rights and environmental harms, including environmental racism, linked to the petrochemical industry along the Houston Ship Channel and Gulf Coast region. Incorporate the findings in future environmental legislation that includes immediate corrective actions and provides appropriate remedy.
- Pass legislation that prioritizes and funds environmental health and environmental justice for fenceline communities exposed to toxic pollutants, including a directive within the National Institute of Health for a scientific advisory board that investigates the health impacts of cumulative exposure to petrochemical pollutants and provides meaningful healthcare-related remedy and compensation. Legislation to be prioritized should include the A. Donald McEachin Environmental Justice for All Act (S. 919) and Cumulative Impacts Act of 2023 (H. R. 4592).

⁵⁰⁸ Permissible under Title 40 Code of Federal Regulations, Part 70.

- Pass legislation requiring stronger environmental regulations through limits on pollutants that are harmful (individually and cumulatively) to health, the environment and climate and closure of loopholes for excess emissions events, such as exemptions for startup, shutdown and malfunction events, and “affirmative defense”. Require petrochemical companies to limit excessive flaring, install leak detection systems that notify the public and utilize emission monitoring systems.
- Legally require petrochemical companies to carry out human rights due diligence to identify and address human rights, environmental and climate impacts related to their operations and business relationships. Make this a requirement to obtain export licenses under Toxic Substances Control Act limitations.
- Require the EPA Office of Inspector General to produce annual reports on permit enforcement and compliance in petrochemical producing states, to ensure the EPA holds environmental regulators and petrochemical facilities accountable for their emissions and permit limitations.
- Pass strong and robust legislation to guarantee fenceline communities’ access to adequate remedy and relief.
- Guarantee the right to health by ratifying and implementing the International Covenant on Economic, Social and Cultural Rights without entering limiting reservations.
- Pass legislation to immediately halt further expansion of fossil fuel-based petrochemical operations. Ensure a rapid phase-out of the most emissions-intensive facilities and develop and implement a human-rights consistent plan to phase out all production and use of fossil fuels by 2030, in line with keeping the global temperature rise below 1.5°C (2.7°F) above pre-industrial levels. This plan must support workers reliant on fossil fuel production to secure alternative livelihoods that provide for sustainable and decent work.

RECOMMENDATIONS TO COMPANIES

TO ALL PETROCHEMICAL COMPANIES IN THE USA

- Ensure operations do not harm human rights, the environment and climate by proactively taking preventive measures, for example by developing and investing in infrastructure and technologies within the facility to mitigate against extreme weather events and developing and implementing power outage contingency plans.
- Conduct ongoing due diligence to identify, prevent, mitigate and account for negative human rights, environmental and climate change impacts resulting from their operations or as a result of their business relationships with other actors. Due diligence should include assessments of the health impacts of their operations and should continue once products have left the facility and are in storage awaiting transit in the local area. Companies should be transparent about their due diligence processes and findings.
- Proactively and regularly provide more information in relevant languages to communities about their facility and operations, including planned maintenance and other processes that may cause disruption and adverse impacts, permit requests, pollutants and chemicals on site and their risks to human health.
- Collaborate with the local, county, and state authorities to develop and implement an effective and accessible notification system for chemical releases and emergency response.

- Develop publicly accessible emergency response plans in relevant languages that include data regarding historically documented industry-related equipment failures and known extreme weather-related disasters in the region. Host community trainings in relevant languages regarding emergency response plans, including shelter-in-place procedures.
- Develop and implement a human rights-consistent plan to rapidly phase out the use of fossil fuels and to significantly decrease the production of greenhouse gases through chemical processes. Identify worker roles at risk of elimination and develop and implement worker re-training programmes to retain potentially displaced workers.

TO COMPANIES NAMED IN THIS REPORT

- Immediately investigate and address human rights and environmental abuses documented in this report, in good faith, and in consultation with impacted fenceline communities, and provide effective remedy where adverse impacts have been identified. Remedies should take into account and assess communities' demands for adequate compensation, allocation of funds to a health programme that provides health monitoring and treatment and provide guarantees of non-repetition.

TO DOWNSTREAM COMPANIES

- Conduct value chain due diligence for petrochemical products and publicly disclose their due diligence policies and practices in accordance with international standards, including how human rights, environmental and climate risks are identified, prevented and addressed in global operations.
- Take remedial action, in cooperation with other relevant actors, if human rights abuses have occurred at any point in a supply chain relationship. Revise due diligence and other policies to clarify what corrective measures will be taken by the company if human rights abuses exist at the point of production and at other points in the supply chain.

RECOMMENDATIONS TO OTHER STAKEHOLDERS

TO THE EU AND HOME STATES OF PETROCHEMICAL COMPANIES

- Legally require companies to conduct human rights, environmental and climate due diligence across their petrochemical value chains, and report publicly on their due diligence policies and practices in accordance with international standards.
- Guarantee access to effective remedy for human rights harms linked to the impacts of petrochemical companies, wherever those harms may occur, including harms resulting from the operations of their subsidiaries (foreign or domestic) and business relationships.

ANNEX 1: COMPANY RESPONSES

Response from Shell Deer Park Chemicals, 2 October 2023

Amnesty International letter to Shell Deer Park Chemicals

Mon 02/10/2023 16:27

To: [REDACTED]

⚠ CAUTION External Sender Exercise caution opening links or attachments. Do not provide login details.

Hi [REDACTED]

At Shell, we are committed to delivering energy responsibly and safely, with our goal being no harm to our employees, contractors, local communities, and the environment.

We have comprehensive safety policies and procedures at Deer Park and train our workforce to minimize risk, respond to, and mitigate the potential impact of any incident. At Deer Park, our employees and contractors are empowered with the authority and responsibility to stop work if they believe conditions are unsafe. We take seriously our responsibility to comply with federal and state regulations, including reporting unexpected emissions.

For more information on Shell Deer Park Chemicals please visit [here](#).

[REDACTED]
[REDACTED]
Shell Spokesperson
Shell Oil Company
150 N Dairy Ashford Rd; A614-C
Houston, TX 77079 USA

E-mail: [REDACTED]

DocuSign Envelope ID: CB1F2054-F752-4EE4-A48F-C087C5CABEFB



To: Amnesty International

1 Easton Street
London WC1X 0DW
via email to: [REDACTED]

4 October 2023

Re: Your letter received September 20, 2023

Dear [REDACTED]

We received your letter on September 20, 2023, asking about human rights due diligence conducted at our Channelview Complex. We invite you to take a look at the following commitments and policies we have in place that advance our sustainability goals.¹

We are committed to respecting human rights throughout our global operations, including at our Channelview Complex. This commitment is set out in our Human Rights Policy,² which is guided by common principles found within a range of international instruments, including the UN Guiding Principles on Business and Human Rights.³ Our Human Rights Policy applies to anyone acting on behalf of our Company, including employees, officers and directors.

The principles described in our Human Rights Policy are important to us. LyondellBasell is committed to being a responsible, good neighbor in the communities where we operate.⁴ We recognize our operations impact the broader communities where we are located, including at our Channelview Complex, and seek to respect the human rights of all individuals that may be affected. We have made positive steps forward and continuously evaluate how we advance our overall approach to sustainability, including human rights, human rights due diligence, and environmental justice.

Alongside our Human Rights Policy, our Code of Conduct embodies our commitment to conducting business ethically and responsibly,⁵ and our Supplier Code of Conduct sets out our expectations for our suppliers in terms of complying with internationally recognized environmental, social and governance standards.⁶

¹ See p. 8 of our 2022 Sustainability Report for a summary of our sustainability goals: [2022-lyb-sustainability-report.pdf \(lyondellbasell.com\)](#)

² [human-rights-policy.pdf \(lyondellbasell.com\)](#)

³ The other international instruments include the UN Universal Declaration on Human Rights, the International Labor Organization's Declaration on Fundamental Principles and Rights at Work and the chemical industry's Responsible Care® program.

⁴ For further information, please see our 2022 Sustainability Report, including pp. 57-60, 75: [2022-lyb-sustainability-report.pdf \(lyondellbasell.com\)](#)

⁵ [code-of-conduct-english.pdf \(lyondellbasell.com\)](#)

⁶ [supplier-code-of-conduct-en.pdf \(lyondellbasell.com\)](#)

LyondellBasell Industries Holdings B.V.
Delftseplein 27E
3013 AA Rotterdam
The Netherlands

P.O. Box 2416
3000 CK Rotterdam
The Netherlands

Tel +31 10 2755500
Fax +31 10 2755599
lyondellbasell.com

Registered at the Chamber
of Commerce Rotterdam
No. 24344658

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We strive to conduct our business in a manner that protects the environment and provides for the safety and health of our employees, contractors, customers and the public. We are committed to the health and safety of all workers in our operations and conduct our business with a GoalZERO mindset, which is our goal of operating safely with zero injuries, zero operational incidents, and zero environmental incidents. Compliance with all applicable health and safety laws is a minimum requirement.⁷

We have a robust Operational Excellence management system designed to identify and manage potential environmental and safety risks. We undertake internal audits and thoroughly investigate incidents and near misses and take corrective action to prevent recurrence.⁸ At the Channelview Complex, we have four primary community alert systems to notify residents and businesses to an event at the facility.⁹

We aim to reduce GHG emissions from our global operations and value chain, and to deliver solutions which advance our customers' climate ambitions and support society's transition to a low carbon world. Our target is to reduce our absolute scope 1 and 2 GHG emissions 42% by 2030 relative to a 2020 baseline, a step up from our previous commitment of 30%. We have also committed to reduce scope 3 emissions by 30% in the same timeframe. We remain committed to reach net zero scope 1 and scope 2 emissions by 2050.¹⁰

Our goals and actions have generated significant external recognition from established rating agencies. For example:

- We received a Gold rating for Sustainability from EcoVadis in 2022, a world leader in business sustainability ratings. Our rating for 2022 is in the top 9% of companies in our industry rated by EcoVadis.
- We received an "A" rating on ESG from MSCI, which measures a company's management of financially relevant ESG risks and opportunities and identifies industry leaders in managing ESG risks and how well they manage those risks relative to peers.
- We received a "B" rating from CDP in response to CDP's Climate Change questionnaire. CDP is a not-for-profit charity that runs a global disclosure system for the public to manage companies' environmental impacts.

⁷ For further information, please see our Health, Safety and Environment Policy: [hses-policy-en.pdf \(lyondellbasell.com\)](https://www.lyondellbasell.com/hses-policy-en.pdf)

⁸ For further information, please see our 2022 Sustainability Report, including pp. 43-47: [2022-lyb-sustainability-report.pdf \(lyondellbasell.com\)](https://www.lyondellbasell.com/2022-lyb-sustainability-report.pdf)

⁹ For further information, please see: [Community Alert System | LyondellBasell](https://www.lyondellbasell.com/community-alert-system)

¹⁰ For further information, please see p. 27 of our 2022 Sustainability Report: [2022-lyb-sustainability-report.pdf \(lyondellbasell.com\)](https://www.lyondellbasell.com/2022-lyb-sustainability-report.pdf)

Response from LyondellBasell (*continued*)

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We trust this letter sufficiently answers your queries. If we have not directly responded to any particular statement or query in your letter, this should not be taken to mean that we agree with that statement or the premise of that query.

Yours sincerely,



VP, Chief Sustainability Officer

ExxonMobil Baytown Area
2800 Decker Drive
Baytown, TX 77520



October 4, 2023

[REDACTED]
Amnesty International
1 Easton Street
London, WC1X 0DW
United Kingdom

Dear [REDACTED]

Exxon Mobil Corporation is writing in response to your recent correspondence regarding operations at the ExxonMobil Baytown Complex. Thank you for your inquiry and your long-standing advocacy for human rights.

ExxonMobil's commitment to respecting human rights is embedded throughout our corporate policies, practices and expectations. Our practices are guided by the goals of universally recognized human rights principles and support our integrated approach to identifying and mitigating potential human rights impacts of our activities.

We comply with all applicable governmental laws and regulations and maintain a corporate-wide commitment to safeguarding the health and security of our employees and the public, responsibly managing our social impacts, and upholding respect for human rights in our operations.

Our respect for the rights of our workforce and those within the communities where we operate is embedded throughout our corporate policies, practices and expectations and reflect the spirit and intent of the United Nations Universal Declaration of Human Rights. They also support the International Labour Organization 1998 Declaration on Fundamental Principles and Rights at Work (ILO Declaration), and incorporate elements of the 2011 U.N. Guiding Principles on Business and Human Rights (UNGPs) "Protect, Respect and Remedy" framework for the distinct but complementary roles of businesses' and governments' regarding human rights including commitments, due diligence and access to remedy.

At our Baytown Complex, community members with immediate concerns can call the Site Shift Superintendent's Office where clerks are on-call 24/7. The concerns or complaints are tracked for follow-up.

Response from ExxonMobil (*continued*)

We proactively communicate about planned activities that may potentially impact the surrounding communities or during plant emergencies via the [Community Awareness Emergency Response \(CAER\) Online app](#).

CAER Online is a system for community members to view posted messages and alerts from facilities regarding operational incidents and planned events. Messages offer basic information such as what the incident or event is, where it happened, and whether any action is required by community members.

Messages posted on CAER Online are also shared on ExxonMobil Baytown Area's social media platforms. We also leverage an SMS texting platform (particularly a Spanish channel) to keep neighbors informed of operational updates.

Additional information can be found on our website at: [Respecting human rights | Sustainability Report \(exxonmobil.com\)](#).

Sincerely,




Baytown Refinery Plant Manager,
Exxon Mobil Corporation

Houston Regional Monitoring Corporation

[REDACTED]
Wed 18/10/2023 19:48

To: [REDACTED]

 **CAUTION External Sender** Exercise caution opening links or attachments. Do not provide login details.

Dear [REDACTED]

This email is in response to [REDACTED] October 12, 2023 letter to Houston Regional Monitoring Corporation (HRM) (your reference AMR 51/2023/4624).

HRM is a not-for-profit corporation that was organized more than 40 years ago to monitor the ambient air quality in the Houston, Texas area to understand the extent and nature of air pollution, provide air quality monitoring data to the State of Texas to assist that agency in the response to and understanding of air pollution in the greater Houston area, perform scientific studies using the monitoring data it collects to better understand the extent and nature of air pollution, and to educate the public regarding air quality in the Houston area.

As to your first and second questions, while HRM has taken note of the HRVOC data and will continue to track changes in HRVOC and other air pollutant concentrations, HRM does not investigate the amounts of air pollutants emitted by stationary, mobile, or other sources in the Houston area or specific actions taken by HRM's member companies or others with respect to the amounts of air pollutants emitted by their operations.

As to your third question, HRM provides the hourly gas chromatograph data it collects, which includes the highly reactive volatile organic compounds referenced in your letter, on a nearly real-time basis to the TCEQ website and the Harris County Pollution Control Service's CAMP website, where it can be accessed by any member of the public. HRM also periodically compiles its air monitoring data trends and shares this information with local Community Advisory Panels and also makes it publicly available on its own website.

[REDACTED]
Amandes PLLC

1800 Post Oak Blvd. Suite 400

Houston, Texas 77056

713.400.1075
[REDACTED]

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[REDACTED]
VP, Chief Sustainability Officer
Delftseplein 27E
3013 AA Rotterdam
Netherlands
[REDACTED]
LYB.com

December 1, 2023

Amnesty International

Attn: [REDACTED]
1 Easton Street
London WC1X 0DW
via email to: [REDACTED]

Re: Your letter received November 17, 2023

Dear [REDACTED]

We received your letter on November 17, 2023, providing us with an opportunity to reply to an upcoming Amnesty International publication. This response is issued on behalf of Equistar Chemicals LP and Lyondell Chemical Company.

We welcome opportunities to engage in dialogue to promote human rights. As mentioned in our letter of October 4, 2023, we continuously evaluate how we advance our overall approach to sustainability, including human rights, human rights due diligence, and environmental justice. While your letter includes statements and implications about the operations of Equistar Chemicals, LP and Lyondell Chemical Company at Channelview that we do not consider to be accurate or fair,¹ we believe that it is important to engage with all of our stakeholders as part of this continuous evaluation.

We are indeed committed to reducing greenhouse gas emissions from our global operations and value chain and we have set clear targets to meet this commitment.² We openly report on global scope 1, 2 and 3 emissions and our strategy to meet our climate goals.³ To reach net zero scope 1 and scope 2 emissions by 2050, we are focusing on multiple levers, including improving the efficiency of our operations, assessing opportunities in electrification of our processes and in carbon capture technology, increasing our use of renewable and low carbon energy, and developing and utilizing new production technologies with a lower carbon footprint compared to traditional processes.⁴ Likewise, we are focusing on various levers to reduce our scope 3 emissions by 30% by 2030.⁵ We continue to integrate climate impacts into our business processes and strategy.

In our letter of October 4, 2023, we referred you to our Human Rights Policy. We reiterate that our commitment to human rights extends to respecting the human rights of the communities that may be impacted by our operations. As part of our aim to be a responsible, good neighbor in the

¹ For example, we are not aware of the community members you have interviewed, nor are we aware of the methodologies and datasets you have used in making certain statements, such as your statements concerning cancer risks that refer to ProPublica analysis.

² Our goals are to: achieve net zero scope 1 and scope 2 GHG emissions from our global operations by 2050; reduce absolute scope 1 and 2 GHG emissions 42% by 2030 (relative to a 2020 baseline); reduce absolute scope 3 GHG emissions 30% by 2030 (relative to a 2020 baseline); and procure a minimum of 50% of electricity from renewable sources by 2030 (relative to a 2020 baseline).

³ See pp. 27-35 of our 2022 Sustainability Report: [2022-lyb-sustainability-report.pdf](https://www.lyondellbasell.com/2022-lyb-sustainability-report.pdf) (lyondellbasell.com)

⁴ See pp. 29-32 of our 2022 Sustainability Report: [2022-lyb-sustainability-report.pdf](https://www.lyondellbasell.com/2022-lyb-sustainability-report.pdf) (lyondellbasell.com)

⁵ Relative to a 2020 baseline. See p. 33 of our 2022 Sustainability Report: [2022-lyb-sustainability-report.pdf](https://www.lyondellbasell.com/2022-lyb-sustainability-report.pdf) (lyondellbasell.com)

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[REDACTED]
VP, Chief Sustainability Officer
Delftseplein 27E
3013 AA Rotterdam
Netherlands
[REDACTED]
LYB.com

communities where we operate, we do indeed engage with our communities through different methods, including advisory panels and surveys. The Channelview facility has a dedicated outreach team that has longstanding relationships with a range of Channelview community stakeholders. As you mention in your letter, a Community Advisory Panel to Lyondell and Equistar, whose members include individuals and representatives from a range of organizations, meets regularly to share information on operations and seek community feedback.

In terms of our environmental performance, we invite you to take a look at our 2022 Sustainability Report where we set out our commitment to promoting pollution prevention and complying with all laws and the terms of our permits.⁶ We continue to build out our approach to environmental justice, and we believe in the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income when it comes to the development, implementation and enforcement of environmental laws, regulations, and policies.

We will share more on our approach to sustainability issues in our upcoming Sustainability Report, which will be published next year. In the interim, please contact us if you wish to discuss any of the above.

Yours Sincerely

[REDACTED]

VP, Chief Sustainability Officer

⁶ See pp. 36-40 of our 2022 Sustainability Report: [2022-lyb-sustainability-report.pdf](https://www.lyondellbasell.com/2022-lyb-sustainability-report.pdf) (lyondellbasell.com)

ANNEX 2: US GOVERNMENT RESPONSES

Response from EPA, 21 November 2023

Amnesty International Letter Responses from EPA Region 6

1. Please provide details of the EPA's public health and environmental monitoring in communities impacted by petrochemical pollution along the Houston Ship Channel. *The TCEQ currently operates a network of air quality monitors in the Houston area. EPA helps support financially through grants to TCEQ the ambient air quality monitoring network throughout Texas including those monitors in the Houston area. The active ambient air monitoring sites and monitors along the Houston Ship Channel are shown in Figure Houston Ship Channel Active Sites and Monitors. These monitors are not meant to specifically monitor individual facility operations, but instead they are sited to monitor overall air quality for compliance with the Clean Air Act's national ambient air quality standards.*

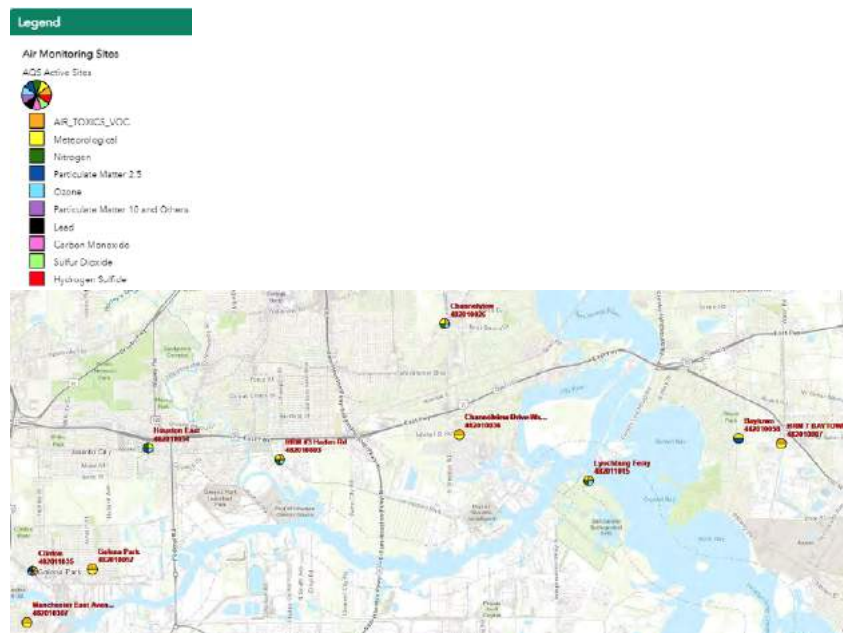


Figure: Houston Ship Channel Active Sites and Monitors

Recently, EPA has funded two new PM2.5 monitors in the Houston area at new sites planned in the Houston Fifth Ward neighborhood (Houston Finnigan Park) and in the Pleasantville

neighborhood (Houston Pleasantville Elementary). TCEQ is currently working on siting agreements in those areas to site the monitors. Further, EPA Region 6 is currently in the process of procuring a mobile monitoring sprinter platform van that will allow the Region to measure multiple air pollutants in real-time. We project this unit will be operational in late 2024 or early 2025.

2. What actions has the EPA taken to ensure petrochemical facilities along the Houston Ship Channel maintain compliance with environmental regulations, particularly in cases of recurrent non-compliance? Please provide details.

EPA regularly conducts investigations and inspections at facilities in the Houston Ship Channel area to evaluate compliance with various environmental regulations. EPA provides the public with access to final versions of our enforcement documents at our Enforcement and Compliance Assurance Division public website: <https://www.epa.gov/tx/enforcement-compliance-assurance-documents-texas> You can find the answer to your questions regarding the EPA actions.

3. What steps has the EPA taken to investigate the cause and human rights and environmental impacts of the May 2023 fire at Shell Deer Park, and what was the outcome of this investigation?

EPA conducted a Risk Management Plan Inspection at the Shell Deer Park Facility on August 14-18, 2023, in response to the May 2023 fire. The inspection report is currently being finalized and when completed it will be accessible at our Enforcement and Compliance Assurance Division public website: <https://www.epa.gov/tx/enforcement-compliance-assurance-documents-texas>

4. What steps has the EPA taken to educate frontline communities on the risks to health from petrochemical emissions?

Below are several examples where EPA has taken actions to help educate communities health risks from petrochemical emissions.

EPA held a webinar on May 20, 2021, to provide community leaders, public officials, and leaders of community organizations in Texas and Louisiana with information about ethylene oxide and its health effects. The webinar focused on ethylene oxide uses, why EPA is involved, how ethylene oxide is managed, and general information on the potential public health risks associated with ethylene oxide. A video recording of the webinar and related information can be found at the following website: <https://www.epa.gov/tx/air-issues-texas>.

On August 17, 2021, EPA conducted a virtual EtO community outreach event for community members who live near the Indorama Port Neches facility. During the virtual meeting, EPA staff and facility representatives provided information and answered questions about ethylene oxide, how it is managed by the facility and the associated potential risks in the communities near the facility. A video and transcript of the event is posted on the following website: <https://www.epa.gov/caa-permitting/site-specificinformation-ethylene-oxide-eto-indorama-ventures-formerly-huntsman>.

On August 26, 2021, EPA conducted a virtual EtO community outreach event for community members who live near the Shell Technology Center in Houston, TX. During the virtual meeting, EPA staff and facility representatives provided information and answered questions about ethylene oxide, how it is managed by the facility and the associated potential risks in the communities near the facility. A video and transcript of the event are posted on the following website: <https://www.epa.gov/caa-permitting/site-specific-information-ethylene-oxide-etoshell-technology-center-houston-houston>.

On April 13, 2023, EPA held a webinar to discuss an EPA rulemaking proposal that would provide critical health protections to hundreds of thousands of people living near chemical plants. It would do this by reducing emissions of hazardous air pollutants (also called "air toxics") including the ethylene oxide (EtO) and chloroprene. Many air toxics, also called hazardous air pollutants, are known, or suspected to cause cancer in humans and can have serious health effects even in small quantities. The proposal would also reduce harmful pollutants that contribute to smog. EPA's proposal would update several regulations that apply to chemical plants, including plants that make synthetic organic chemicals, and regulations that apply to plants that make polymers such as neoprene. Additional information on this webinar can be found at: <https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/informational-webinar-epas-proposal-strengthen-standards>.

5. Please provide details of all assessments that EPA has or is conducting with regards to the renewal of ITC Deer Park's Federal Operating Permit, including evaluations of potential impacts on communities and the environment, the facility's compliance record, and any environmental justice analysis. *EPA is monitoring the TCEQ's progress as they respond to the public comments received on the title V permit for the ITC Deer Park Facility. EPA has maintained a dialog with TCEQ through the public hearing and comment process. EPA has advised TCEQ that due to the nature and extent of impacts to the community from the fire at the ITC Deer Park facility and the environmental justice concerns, that additional public outreach is needed when they propose the title V permit to EPA for review. EPA Region 6 staff is committed to thoroughly reviewing the title V permit for ITC Deer Park when we receive the proposed permit from TCEQ.*

EPA will have 45 days to review and has the opportunity to object to the issuance if it is found that the permit does not meet the requirements of 40 CFR Part 70.

EPA has the following schedule for several ongoing air toxics rulemakings which should further reduce emissions of hazardous air pollutants in the Houston Ship Channel area.

Source Category (Link to Regulatory and Supporting Information)	Proposed Rule Publication Date (or Signature Date)	Final Rule Publication Date (or Consent Decree or Court Ordered Date for Signature of Final Rule)
Chemical Manufacturing Area Sources Technology Review	(11/13/2024) per draft consent decree	(09/17/2025; per draft consent decree)
Oil and Gas Technology Review	(12/10/2024)	(12/10/2025)
Marine Tank Vessel Loading Technology Review	(12/19/2025)	(12/18/2026)
Epoxy Resins Production and Non-Nylon Polyamides: National Emission Standards for Hazardous Air Pollutants (NESHAP)	04/25/2023	(03/29/2024)
Group I Polymers and Resins: National Emission Standards for Hazardous Air Pollutants (NESHAP)	04/25/2023	(03/29/2024)
Synthetic Organic Chemical Manufacturing Industry: Organic National Emission Standards for Hazardous Air Pollutants (NESHAP) - 40 CFR 63 Subparts F,G,H,I	04/25/2023	(03/29/2024)

7. What action has the EPA taken to prioritize trainings and communications with local community organizations seeking funds from President Biden’s Equity Action Plan (Executive Order 13985)?

Grant Competition for Community Monitoring

On December 13, 2021, EPA announced the availability of \$20 million in American Rescue Plan funding through competitive grants to enhance ambient air quality monitoring in and near underserved communities across the United States. The goal of this grant competition was to award funds to support community and local efforts to monitor air quality and to promote air quality monitoring partnerships between communities and tribal, state, and local governments. This EPA funding was designated by Congress to address health outcome disparities from pollution and the COVID–19 pandemic. On September 29, 2021, EPA hosted a general grants training for community organizations, tribes, and air agencies in preparation for the American Rescue Plan’s enhanced air monitoring competitive grant competition. EPA opened the request for applications (RFA) for EPA’s Enhanced Air Quality Monitoring for Communities grant competition on December 13, 2021. Applications were due March 25, 2022. On January 11, 2022, EPA hosted an informational webinar on the Enhanced Air Quality Monitoring for Communities Grant Competition.

EPA received more than 200 applications from community-based nonprofit organizations, Tribal governments, States, and local governments. All applications were rigorously reviewed and evaluated on several criteria including community involvement, environmental justice, environmental results, quality assurance, programmatic capability, budget, and overall project approach. The number of submissions EPA received far exceeded the ARP funding available. Ultimately, EPA funded two projects in the Houston area totaling almost \$1M with grant awards for community monitoring going to Achieving Community Tasks Successfully (ACTS) and the City of Houston projects.



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT
2000 FORT POINT RD
GALVESTON, TEXAS 77550

November 30, 2023

[REDACTED] Deputy Director and Head of Business and Human Rights
Researcher and Advisor, Business and Human Rights
Amnesty International, International Secretariat
1 Easton Street
London, WC1X 0DW
United Kingdom

Re: Ref: TG AMR 51/2023.4716, Expansion of the Houston Ship Channel

Dear [REDACTED]

Thank you for your letter dated Nov 16, 2023. We look forward to the full text of your report and share your commitment to the environmental and socioeconomic health of our Gulf Coast community. As "Champions of The Gulf Coast," The U.S. Army Corps of Engineers (USACE) Galveston District appreciates the opportunity to discuss our role and ongoing efforts regarding the Houston Ship Channel Expansion Channel Improvement (HSC ECIP) project.

As with all other USACE navigation projects across the U.S., our efforts on the Houston Ship Channel require compliance with federal law for dredging. We lead these operations in partnership with our non-federal sponsor, Port Houston, and collaborate with many federal agencies including Region 6 of the U.S. Environmental Protection Agency, the State of Texas, and county and local authorities.

Authorized by the U.S. Congress in the Water Resources and Development Act of 2020, the HSC ECIP will reduce transportation costs, enhance channel efficiency and safety, develop environmentally suitable dredged material placement, and address high shoaling spots. Planning for the HSC improvement began in 2010, involving a comprehensive five-year feasibility study in compliance with the National Environmental Policy Act (NEPA). A public review of the draft IFR/EIS was completed on Nov 13, 2017, exceeding standards, and including an additional 30-day public comment period. The Final IFR/EIS also underwent a 30-day waiting period and state and agency review.

In 2020, federal project approval reviews confirmed the project's technical soundness, environmental and social acceptability, and economic justification. We considered all relevant laws, executive orders, regulations, and local government plans, aligning with the U.S. Water Resources Council's Principles and Guidelines. Our decision-making integrates environmental considerations throughout the EIS process, and extensive efforts over the years include considering the perspectives of all interested parties, particularly historically marginalized communities. With the study and authorization complete, we've continued to engage with the community as we transition from feasibility to design and then into construction.

Sincerely,

[REDACTED]

Colonel, U.S. Army
Commanding



November 30, 2023

[REDACTED]
Deputy Director and Head of Business and Human Rights
[REDACTED]
Researcher and Advisor, Business and Human Rights
Amnesty International, International Secretariat
1 Easton Street
London, WC1X 0DW
United Kingdom

Re: Ref: TG AMR 51/2023.4717, Expansion of the Houston Ship Channel

Dear [REDACTED]

Port Houston appreciates the opportunity to respond to your draft findings. If issues concerning the Houston Ship Channel are included in your upcoming report, we respectfully request that you provide the Port's response in full in your report.

Port Houston deeply values our partnership with our surrounding communities. We are committed to safety and environmental stewardship, and we are committed to working with our Federal, state, and local partners to respond to our communities' concerns and requests for information regarding dredged material placement areas and other work related to the Houston Ship Channel.

Project 11's Environmental, Safety, and Economic Benefits

With the latest Houston Ship Channel Expansion – Project 11 – Port Houston has prioritized making sustainable choices, as evidenced by our use of the cleanest available dredges capable of completing construction and the fact that nearly 100% of the non-silt material dredged from the Galveston Bay portion of the project will be beneficially used to create and enhance local habitat. In total, Port Houston and the U.S. Army Corps of Engineers will use most of the dredged material from Project 11 – more than 17 million cubic yards – to create 800 acres of marsh, 324 acres of replacement oyster reef pads, and 10 acres of bird islands. Once the project is complete over the next few years, regional air quality is also projected to improve, due to a reduction in vessel nitrous oxide emissions of up to 7%, because of increased vessel efficiency and reduced congestion.

Project 11 is also widening the Houston Ship Channel, which will improve safety for the nearly 20,000 vessels transiting the ship channel per year at the nation's busiest port by tonnage. The Houston Ship Channel supports the creation of 1.54 million jobs in Texas – and many of those are in the Pleasantville, Galena Park, the Port Houston neighborhood, Channelview, and Pasadena communities.

Rigorous Sampling and Analysis Protocols for Dredged Materials

The materials to be dredged for construction of Project 11 in the vicinity of the Pleasantville, Channelview, Galena Park, and Port Houston neighborhoods are predominantly native (never-dredged or in-situ) clay

[REDACTED] Chief Channel Infrastructure Officer • 111 East Loop North • Houston, Texas 77029 • [REDACTED]
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soils, which the U.S. Army Corps of Engineers has sampled and analyzed, following the guidelines and protocols described below, to confirm they are proper for placement in confined upland disposal facilities, and that any runoff or effluent maintains Texas Council on Environmental Quality (TCEQ) surface water quality standards.

Over the past three decades, the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers have developed a series of framework documents, guidelines, manuals, and agreements to confirm inland dredged material placement areas are safe and environmentally sound:

- The U.S. Army Corps of Engineers' evaluations of environmentally acceptable alternatives for placement of dredged material are governed by the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers document *Evaluating Environmental Effects of Dredged Material Management Alternatives – A Technical Framework* (May 2004).
- Sediment testing to inform proper and environmentally acceptable dredged material placement is governed by the U.S. Environmental Protection Agency's Clean Water Act Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material, 40 C.F.R. Part 230, including the general evaluation guidelines of 40 C.F.R. § 230.60, and the guidelines for chemical, biological, physical evaluation, and testing at 40 C.F.R. § 230.61.
- Testing protocols are provided in the U.S. Army Corps of Engineers' *Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities - Testing Manual (Upland Testing Manual)* (January 2003).

The screening criteria applied under these manuals and agreements are a combination of marine sediment screening guidelines from the U.S. National Oceanic and Atmospheric Administration (NOAA) and Region 6 of the U.S. Environmental Protection Agency. Associated results are screened with water quality guidelines from the TCEQ's surface water quality standards and marine screening water quality guidelines from NOAA and Region 6 of the U.S. Environmental Protection Agency.

All sampling and analysis for the Project 11 dredged materials to be placed at these upland placement areas followed the guidance documents and plans for the Project 11 [Feasibility Report-Environmental Impact Statement](#) and [Dredged Material Management Plan](#). During the design phase, the U.S. Army Corps of Engineers completed site-specific modeling and analysis refinements in February 2021 for the Clinton placement area, and the TCEQ concurred with its findings that the analysis provides reasonable assurance that water from the placement area would comply with water quality standards. Additional analysis is currently underway for the Glendale and Filterbed placement areas using site-specific parameters.

Although it does not govern Federal dredged material placement, the TCEQ's Texas Risk Reduction Program's Tier 1 Protective Concentration Limits for contaminants in residential soils provides a useful point of reference. The sediment testing results do not show that any of the new work dredged material planned for placement at the Glendale, Filterbed, or Clinton placement areas exceed the TCEQ program's Tier 1 Protective Concentration Limits for contaminants in residential soils – its most restrictive standard.

Project 11 Responded to Requests to Beneficially Use Clay to Close Pleasantville Area Sites

The Glendale and Filterbed sites are at the end of their useful life as dredge placement areas. The plan to use clean, new-work clay dredged from Project 11 to close the Glendale and Filterbed placement areas in



and near Pleasantville was proposed by members of the local community and by Federal and state resource agencies on the Houston Galveston Navigation Channel Beneficial Uses Group. The Project 11 Dredged Material Management Plan states:

During the preliminary assessment, NEPA scoping process, resource agencies, and the general public expressed interest in the following options: . . . Focus new work material placement on existing [Placement Areas] nearing final life as a cap for closure.

Of the measures carried forward, the following measures apply to Segment 5. . . .

BB9 – Focus new work material placement on existing sites nearing final life as a cap - Both the Glendale and Filterbed [Placement Areas] are at or near final capacity. Public comment and coordination indicate that the neighboring residential areas desire that these sites be capped and closed. This measure contemplates construction earthen dikes and filling and capping the site with new work materials from construction of the channel improvements.

Houston Ship Channel Final Feasibility Report and Environmental Impact Statement, Appendix R, Dredged Material Management Plan at 5-4, 5-26 (Nov. 2019).

Port Houston supports final designs for Glendale and Filterbed that effectively protect the safety and environment of these areas, cover with a layer of native soil and vegetation, and provide benefits for the communities in the vicinity of these former placement areas. As we stated in several letters to and meetings with local community members, we also want to work with our communities and our state and Federal partners to explore opportunities for closing and converting the Glendale and Filterbed placement areas into parks, green spaces, or other community assets after construction of the Houston Ship Channel is complete.

The U.S. Environmental Protection Agency Vetted Project 11's Plans and Environmental Review

The U.S. Environmental Protection Agency reviewed Project 11's Draft Feasibility Report and Environmental Impact Statement, including the Environmental Justice analysis. On November 16, 2017, the U.S. Environmental Protection Agency Region 6's Chief of the Specials Projects Division of its Compliance Assurance and Enforcement Division wrote that the agency had rated the Draft Environmental Impact Statement "Lack of Objections," its highest rating, and that the Environmental Impact Statement had sufficiently demonstrated that environmental impacts from the selected plan can be "mitigated, minimized and/or avoided altogether as required by law." The U.S. Environmental Protection Agency also reviewed Project 11's Final Feasibility Report and Environmental, and on March 4, 2020, Region 6's Director of its Office of Communities, Tribes and Environmental Assessment wrote that the agency had commented on the Draft Environmental Impact Statement and had no objections to the project, and that after reviewing the Final Environmental Impact Statement, EPA had no additional comments.

Port Houston Supports Our Communities and Environment

Port Houston consistently invests in our neighboring communities' students, schools, parks, and community groups, and we want to see Pleasantville, Galena Park, the Port Houston neighborhood, Channelview, and Pasadena thrive and prosper. Port Houston's work to support and improve the communities around the

██████████ Chief Channel Infrastructure Officer • 111 East Loop North • Houston, Texas 77029 • ██████████
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Houston Ship Channel includes our Community Grants Program, which focuses on investing resources into meaningful projects and programs in our area. Since the program's inception in 2020, we have awarded \$1.25 million to initiatives related to economic and workforce development, pollution reduction, and health equity and health disparities programs. In addition, in 2022 we allocated \$2 million for a three-year parks and green space program, which includes projects like walking trail improvements and spark parks.

Port Houston has also announced a goal to become carbon neutral by the year 2050, and we are actively pursuing that milestone, which will benefit air quality for area residents and reduce global carbon pollution. Port Houston was the first port authority in the United States to be certified by the International Organization for Standardization under ISO 14001 for environmental performance. Meeting these rigorous standards since 2002 is a testament to our longstanding commitment to environmental responsibility.

Port Houston welcomes ongoing dialogue in the interest of finding common ground. We value safety and sustainability and will continue to work with our communities to be a good neighbor. We have committed to continuing our engagement with community members and our state and Federal partners on the most appropriate measures to develop and provide additional, reliable information to address community concerns about upland placement areas.

Sincerely,

Chief Channel Infrastructure Officer

 Chief Channel Infrastructure Officer • 111 East Loop North • Houston, Texas 77029 • 
PortHouston.com

Response from TCEQ, 1 December 2023

RE: Right of reply ahead of upcoming Amnesty International publication

[REDACTED]
Fri 01/12/2023 19:50

To: [REDACTED]
Cc: [REDACTED]

CAUTION External Sender Exercise caution opening links or attachments. Do not provide login details.

[REDACTED]
We have no comment at this time.

Best,

[REDACTED]
Media and Community Relations Manager

Texas Commission on Environmental Quality

[REDACTED]
Media@tceq.texas.gov
www.tceq.texas.gov/news



From: [REDACTED]
Sent: Monday, November 27, 2023 8:45 AM
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Right of reply ahead of upcoming Amnesty International publication

Dear [REDACTED]

This is a polite reminder that the deadline to respond to our letter is 1 December.


I look forward to hearing from you and if you have any questions, please let me know.


Kind regards,
[REDACTED]



**AMNESTY INTERNATIONAL
IS A GLOBAL MOVEMENT
FOR HUMAN RIGHTS.
WHEN INJUSTICE HAPPENS
TO ONE PERSON, IT
MATTERS TO US ALL.**

CONTACT US

 info@amnesty.org

 +44 (0)20 7413 5500

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THE COST OF DOING BUSINESS?

THE PETROCHEMICAL INDUSTRY'S TOXIC POLLUTION IN THE USA

Along the Houston Ship Channel in Texas, USA, chemical disasters occur so frequently there is a widely held belief that they are simply the cost of doing business. Hundreds of polluting facilities operate here, converting fossil fuels into the chemical building blocks of plastics and fertilizers. The people who live, work and go to school in this polluted sacrifice zone are exposed daily to hazardous chemicals in the air they breathe. This report examines the human rights, environmental and climate harms linked to the operations of the Houston Ship Channel's petrochemical industry. It presents illustrative case studies that exemplify practices that contribute to these harms, involving four petrochemical facilities: ExxonMobil Baytown Complex, LyondellBasell Channelview Complex and Shell Chemicals Deer Park, and Intercontinental Terminals Company Deer Park. The report urges all petrochemical companies to immediately provide meaningful remedy for the harm they have caused and to avoid future harm. The US government must take urgent action to facilitate the enjoyment of human rights along the Houston Ship Channel. This includes holding polluters to account, restricting further expansion of the petrochemical industry and implementing a just transition away from fossil fuels by 2030, to prevent the most catastrophic impacts of climate change.

Index: AMR 51/7566/2024

January 2024

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