



Jul 6, 2022

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Office of the Chief Clerk

Texas Commission on Environmental Quality

P.O. Box 13087, MC 105

Austin, Texas 78711-3087

**RE: Comments on Lyondell Chemical Company Air Quality Permit Number 83817 at 2502 Sheldon Road, Channelview, Harris County, Texas 77530**

Dear Texas Commission on Environmental Quality,

On July 21, 2021, Lyondell Chemical Company (Lyondell) (RN100633650, CN600344402) submitted its application to the Texas Commission on Environmental Quality (TCEQ) for amendments to Air Quality Permit Number 83817, which would authorize modification to the Lyondell Chemical Channelview facility located at 2502 Sheldon Rd, Channelview, Harris County, Texas 77530. Air Alliance Houston (AAH) submits these comments in response.

The facility is situated within the Channelview census-designated place in east Harris County – an area already inundated with industrial facilities and other pollution sources. Communities that live in and near these facilities are engulfed with pollution of every kind. As a result, members of these communities face serious health impacts. For example, research by the University of Texas’ School of Public Health found that children living within two (2) miles of the Houston Ship Channel (which includes Channelview) have a 56 percent greater chance of

having leukemia than children living farther away as well as other severe health impacts.<sup>1</sup> The Channelview facility itself has a history of noncompliance with permit requirements and unsafe operating conditions as evidenced by the seven (7) Clean Air Act (CAA) enforcement actions it has received over the last five (5) years and the 26 emergency responses since 2015. Moreover, the facility has spent at least two (2) of the last 12 quarters in CAA noncompliance (as of June 28, 2022). Despite the multiple investigations and complaints against it, TCEQ maintains that the facility has a satisfactory compliance score.<sup>2 3</sup>

Commenters thus oppose the issuance of these permit modifications for the reasons outlined in this letter.

## **I. COMMENTERS**

Air Alliance Houston (AAH) is a Texas 501(c)(3) non-profit advocacy organization working to reduce the public health impacts of air pollution and advance environmental justice through applied research, education, and advocacy. AAH takes a strong stance against disproportionate exposure to air pollution in overburdened communities of color and lower income by focusing attention on health equity and environmental justice.

## **II. ENVIRONMENTAL JUSTICE CONCERNS**

Lyondell Chemical Company (Lyondell) owns the refinery located at 2502 Sheldon Rd, Channelview, Harris County, Texas 77530 in east Harris County. The facility impacts

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<sup>1</sup> K. Walker et al., University of Texas Health Science at Houston, School of Public Health, An investigation of the association between hazardous air pollutants and lymphohematopoietic cancer risk among residents of Harris County, Texas, See electronically at:

<https://pdfs.semanticscholar.org/3b67/75f96037b7dd2104a11296784f52d4cddf33.pdf>.

<sup>2</sup> EPA Enforcement and Compliance History Online (ECHO) Search. See electronically at:

<https://echo.epa.gov/detailed-facility-report?fid=110000463221>

<sup>3</sup> TCEQ Compliance History Search. See electronically at:

<https://www2.tceq.texas.gov/oce/ch/index.cfm?fuseaction=main.viewdetails&rid=171263362001309>

surrounding communities within the Channelview area, many of which are designated as environmental justice communities and already overburdened with multiple sources of pollution.

### **A. Factors Defining Local EJ Communities**

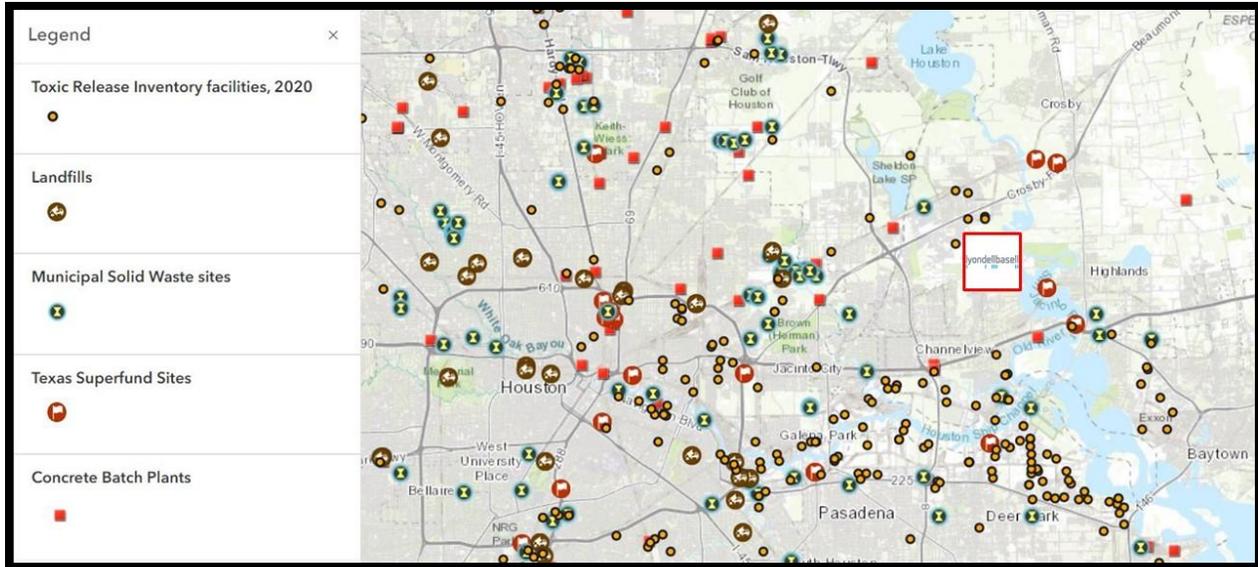
The U.S. Environmental Protection Agency (EPA) defines “environmental justice (EJ) communities” as communities most impacted by environmental harms and risks, or overburdened communities. Several factors define EJ communities, including where there is: (1) disproportionate exposure to environmental hazards and (2) increased vulnerability to said hazards. The EPA further describes these factors in their definition of an overburdened community: the term describes situations where multiple factors, including both environmental and socioeconomic stressors, may act cumulatively to affect health and the environment and contribute to persistent environmental health disparities.<sup>4</sup>

Lyondell’s refinery is located less than one (1) mile from Channelview residences including Harvey Brown Elementary School and only a few miles away from the Houston Ship Channel. EPA has recognized that these predominantly minority and lower-income communities face disproportionately high exposure to risk created by industrial sources of pollution, like Lyondell.<sup>5</sup> Moreover, a task force report for former Houston Mayor Bill White noted: “Over 20 of the largest industrial sources [of pollution] are located in East Houston. The Port of Houston, and the Ship Channel that feeds it, passes through the middle of this area and generates a variety of hazardous pollutants, adding to those from the nearby industrial sources.” These sources include refineries, chemical plants, sewage treatment facilities, hazardous waste (Superfund) sites, and concrete batch plants (see Figure 1).

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<sup>4</sup> United States Environmental protection Agency. See electronically at: <https://www.epa.gov/environmentaljustice>

<sup>5</sup> EPA Region 6, Texas Environmental Justice Collaborative Action Plan at 4 (August 3, 2016). See electronically at: [https://www.epa.gov/sites/production/files/2016-12/documents/texas\\_ej\\_plan\\_8-3-16\\_final.pdf](https://www.epa.gov/sites/production/files/2016-12/documents/texas_ej_plan_8-3-16_final.pdf).



*Figure 1. Map of the industrial burden in the community near Lyondell Channelview*

## **B. Profile of the Immediate Surrounding Community**

There are nearly 2,400 residences located within only a one (1) mile radius of the Lyondell facility and nearly 22,000 located within a two (2) mile radius. According to EPA's EJSCREEN tool, people living in the two (2) mile radius surrounding the Lyondell facility are in the top 10 percentile in the country for the following EJ criteria: Particulate Matter 2.5 (99%), Ozone (98%), 2017 Diesel Particulate Matter (99%), 2017 Air Toxics Cancer Risk (99%), 2017 Air Toxics Respiratory Hazard Index (99%), Traffic Proximity and Volume (90%), Superfund Proximity (98%), Risk Management Plan (RMP) Facility Proximity (99%), Hazardous Waste Proximity (96%), Underground Storage Tanks (92%), and Wastewater Discharge (95%). This population is predominantly minority (90%) with over a third (37%) of households considered low-income (earning less than \$50,000 a year), over a quarter (28%) of residents having no high school diploma, and 11% being considered linguistically isolated.<sup>6</sup>

<sup>6</sup> EJSCREEN ACS Summary Report. Available electronically at: <https://ejscreen.epa.gov/mapper/>

In Channelview specifically, multiple petrochemical facilities surround residential areas. Socioeconomic and environmental stressors further establish that Channelview is an EJ community under the EPA definition. According to the 2020 Census, a large portion of the community is considered a sensitive population with over one-third (34.2%) of residents being children under the age of 18, and 7.3% being seniors aged 65 and older. Additionally, 28% of residents have no high school diploma. Per capita income is \$21,370 with a fifth of residents (20%) falling below the poverty line. The community is predominantly a minority community with residents of color comprising 86.6% of Channelview's population with 72% Hispanic/Latino. Over sixty-three percent (63.3%) of residents speak a language other than English at home, with an overwhelming percentage being Spanish.<sup>7</sup> Residents in Channelview by all definitions live in an EJ community and deserve protection by the TCEQ.

All of the above means this is a permit that involves significant EJ implications and requires particular focus and action by TCEQ to address these concerns. Given that people living near Lyondell's refinery are already overburdened by pollution, vulnerable to health concerns due to age, isolated due to language barriers, and facing more serious barriers to upward mobility than most people living in Texas, the TCEQ must carefully weigh the impacts associated with the proposed expansion project against the burdens it will create.<sup>8</sup>

### **III. CONCERNS REGARDING THE FACILITY AND ITS HISTORY**

Lyondell Chemical Company (Lyondell) owns and operates a petrochemical complex located at 2502 Sheldon Rd, Channelview, Harris County, Texas 77530, which is a major source of hazardous air pollutants and criteria pollutants—including the precursors for ozone formation (NO<sub>x</sub> and VOC)—located in the Harris County ozone nonattainment area. The complex includes

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<sup>7</sup> United States Census Bureau, Quickfacts, Channelview CDP, Texas. See electronically at: <https://www.census.gov/quickfacts/channelviewcdptexas>

<sup>8</sup> See, e.g., 30 Tex. Admin. Code §§ 116.111(a)(2)(A)(ii), 116.150(d)(4).

two large chemical manufacturing facilities and two olefins units that are used to manufacture ethylene, propylene, butadiene, and benzene as well as produce propylene oxide, styrene monomer, and other derivatives and gasoline-blending products. The site also includes the world's largest propylene oxide, tertiary butyl alcohol plant.<sup>9</sup>

### **A. Lyondell Has A History of Noncompliance**

Lyondell has an established history of non-compliance with seven (7) Clean Air Act (CAA) enforcement actions since 2017,<sup>10</sup> 26 emergency responses since 2015,<sup>11</sup> and 32 air quality emissions events since 2015.<sup>12</sup> The EPA has now levied over \$22,000 in penalties and fines against Lyondell due to these violations.

#### **1. Emergency Responses and Emission Events**

The most recent emergency response was recorded on March 3, 2021.<sup>13</sup> Several more of these emergency response events have occurred over the past few years. There have been four (4) emergency responses between 2021 and 2022.

The most recent emissions event record lasted twenty-two (22) hours on June 15, 2022, from a pipe leak due to corrosion on the pump discharge line for Tower T-6177. During this emissions event, Lyondell *illegally* released 344.23 pounds of Isobutylene, 21.85 lbs of t-Butyl Alcohol, and several pounds of numerous other hazardous air pollutants including Acetone all in

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<sup>9</sup> Channelview Complex, LyondellBasell, See electronically at:

<https://www.lyondellbasell.com/en/channelview-complex/>

<sup>10</sup> EPA Enforcement and Compliance History Online (ECHO) Search. See electronically at:

<https://echo.epa.gov/detailed-facility-report?fid=110000463221>

<sup>11</sup> TCEQ Emergency Response Report. See electronically at:

[https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.emsincdetail&addn\\_id=478580622008029&re\\_id=171263362001309](https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.emsincdetail&addn_id=478580622008029&re_id=171263362001309)

<sup>12</sup> TCEQ Air Emissions Event Reports. See electronically at:

[https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.eeincdetail&addn\\_id=478580622008029&re\\_id=171263362001309](https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.eeincdetail&addn_id=478580622008029&re_id=171263362001309)

<sup>13</sup> TCEQ, Emergency Response Report. See electronically at:

[https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.emsincdetail&addn\\_id=478580622008029&re\\_id=171263362001309](https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.emsincdetail&addn_id=478580622008029&re_id=171263362001309)

violation of their NSR permit - which did not authorize any emissions of these chemicals.<sup>14</sup> Several more of these emissions violations have occurred over the past year including a process upset lasting 71 hours on March 26, 2021 due to a leak on the bonnet of a valve on an exchanger resulting in permit violations due to emissions of unauthorized pollutants including Propane and Propylene. Thirty-two (32) air quality emission events have been recorded since 2015. Lyondell has been consistently releasing hazardous substances into near-by residential communities.

Moreover, Lyondell has faced five (5) official complaints to TCEQ on issues from emissions, unauthorized releases, and illegal venting, thus highlighting the constant harm and nuisance it causes nearby communities.<sup>15</sup> Lyondell has also disregarded the requirements of its permits, which were created to maintain the intent of the CAA. Lyondell accepts the fines imposed and continues its noncompliance. TCEQ must address this pattern of disregard and noncompliance by Lyondell before approving any additional permit modifications, facility expansions, or emissions increases.

## **2. 2021 Clean Air Act (CAA) Violations**

Lyondell violated the CAA as recently as 2021. According to the EPA and the Department of Justice's settlement with Equistar Chemicals, LLP; LyondellBasell Acetyls, LLC; and Lyondell Chemical Company, the Channelview facility is covered in this settlement.<sup>16</sup> The complaint alleges violations of CAA requirements at Lyondell's flares that resulted in excess emissions of pollutants, including volatile organic compounds (VOCs), and various hazardous

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<sup>14</sup> TCEQ. Air Emission Event Report Database Incident 381518. See electronically at:

<https://www2.tceq.texas.gov/oce/eer/index.cfm?fuseaction=main.getDetails&target=381518>

<sup>15</sup> TCEQ Air Quality Complaints at Lyondell Chemical Company. See *electronically* at:

[https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.complincdetail&addn\\_id=478580622008029&re\\_id=171263362001309](https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.complincdetail&addn_id=478580622008029&re_id=171263362001309)

<sup>16</sup> Equistar Chemicals, LP; LyondellBasell Acetyls, LLC; and Lyondell Chemical Company Clean Air Act Settlement See electronically at:

<https://www.epa.gov/enforcement/equistar-chemicals-lp-lyondellbasell-acetyls-llc-and-lyondell-chemical-company-clean#violations>

air pollutants (HAPs) including benzene, and climate-change-causing greenhouse gases. The allegations include violations of New Source Review/Prevention of Significant Deterioration (NSR/PSD) and Minor New Source Review, 40 C.F.R. Parts 51 and 52, New Source Performance Standards (NSPS), 40 C.F.R. Part 60, Subparts A and DDD, and various violations under Title V and the Title V permit at Lyondell’s facilities. The facility has agreed to make upgrades and perform compliance measures estimated to cost \$50 million to resolve allegations they violated the CAA and state air pollution control laws at six (6) petrochemical manufacturing facilities located in Channelview, Corpus Christi, and LaPorte, Texas. TCEQ must ensure that Lyondell has complied with the terms of this settlement to reduce HAPs before granting its requested modifications.

Additionally, the EPA “identified potential environmental justice concerns at the two Channelview facilities for exposure to particulate matter (2.5 micron), ozone, toxic cancer risk, and respiratory hazard.”<sup>17</sup> As previously mentioned, the Channelview facility is situated in communities of color and releases harmful emissions for extended periods. Overburdened communities like Channelview must be protected from unnecessary harm that Lyondell causes. The settlement serves to ensure significant emissions reductions of VOCs, HAPs, and greenhouse gases that the Channelview facilities are exposing community members to. TCEQ should be an active participant in enforcement of this settlement.

## **B. Lyondell’s Risk to Public Health**

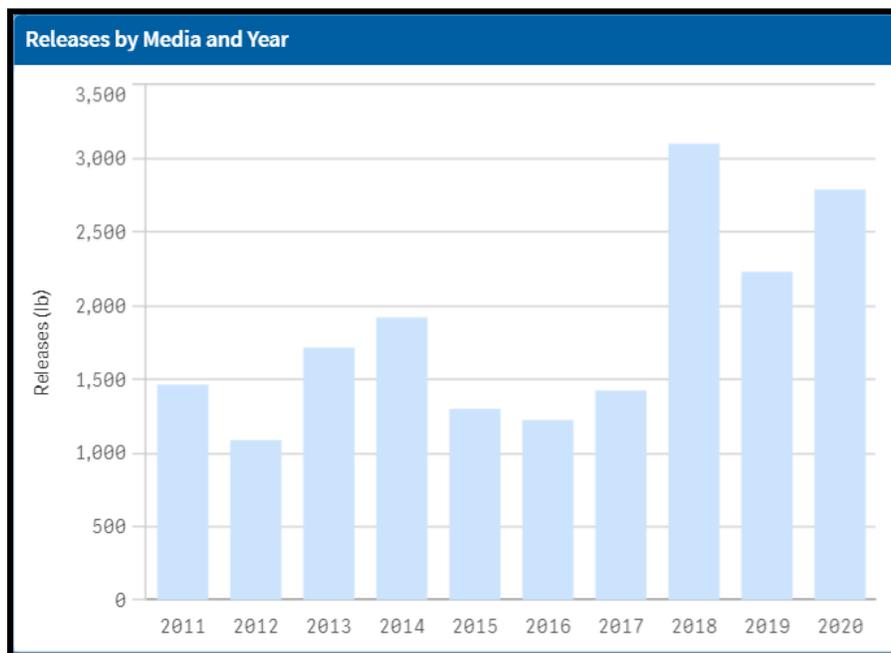
### **1. Ethylene Oxide (EtO) pollution**

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<sup>17</sup> United States Environmental Protection Agency. LyondellBasell Companies Agree to Reduce Harmful Air Pollution at Six U.S. Chemical Plants. See electronically at: <https://www.epa.gov/newsreleases/lyondellbasell-companies-agree-reduce-harmful-air-pollution-six-us-chemical-plants>

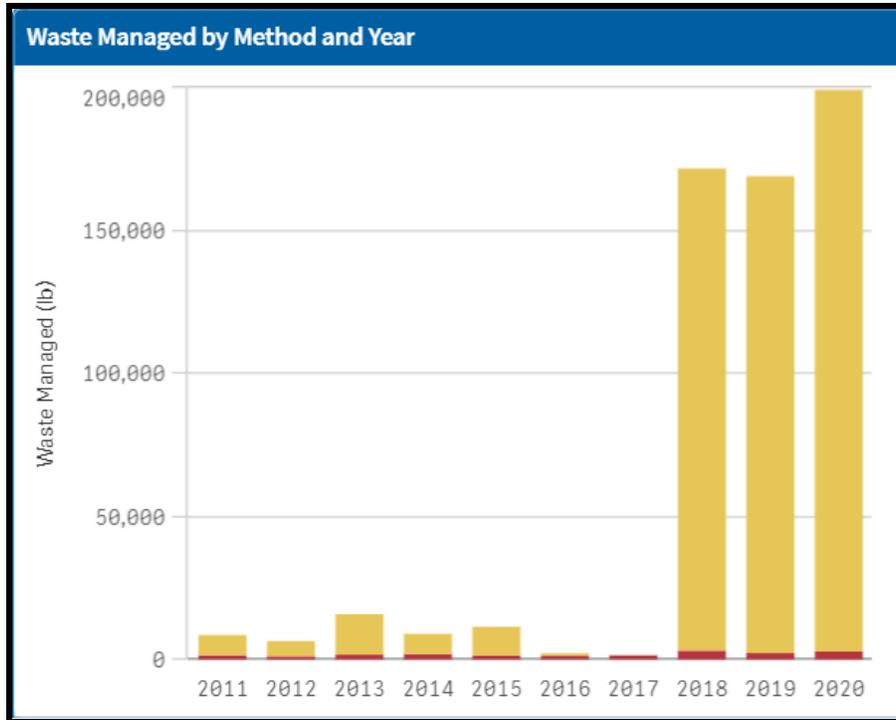
Lyondell’s Channelview Complex manufactures Ethylene Oxide (EtO) and uses it to produce derivatives and gasoline-blending products. The site expansions included a 250 million pounds-per-year EtO increase in 2015. According to the EPA Toxic Release Inventory (TRI), the facility is identified as one of the top sources of EtO pollution in Harris County.

According to EPA TRI data on the Lyondell Channelview Complex (TRI ID: 77530RCCHM2502S), the facility released 2,790 lbs of EtO in 2020 alone, entirely into the air. Additionally, the TRI records a total release value of 18,248 lbs of EtO from the plant. This marks a continued trend of drastically increased releases over the last three years: 2018 (3,101 lbs) and 2019 (2,230 lbs). The highest ever recorded values over all reporting years.<sup>18</sup>



EtO waste also increased dramatically at Lyondell Channelview over the last three (3) years: 2018 (171,751 lbs), 2019 (169,049 lbs), and 2020 (199,271 lbs) - again, the highest ever recorded values over all reporting years. This indicates increased production and releases as well.

<sup>18</sup> Toxic Release Inventory. EPA TRI Toxics Tracker: <https://www.epa.gov/toxics-release-inventory-tri-program>



Based on the EPA National Emissions Inventory (NEI) data for the most recent publicly available year (2017), the Lyondell Channelview Complex recorded 7.855 tons (15,710 lbs) of EtO emissions as a point source. Data from the 2017 AirToxScreen (previously NATA) reveal the total cancer risk for the census tract housing the Lyondell Channelview Complex to be 80 in a million. EtO possesses the greatest contribution to this risk at 42.8% of the total. Additionally, census tracts downwind of the plant all possess elevated cancer risks: ranging from 75 to 100 in a million. The total Risk-Screening Environmental Indicators (RSEI) score for the Lyondell Channelview Complex with regards to EtO was 45,983,224 - significantly higher than the medians for industry, county, state, and the country.<sup>19</sup>

EPA, as well as the International Agency for Research on Cancer (IARC) and the National Toxicology Program, classify EtO as carcinogenic to humans. Studies of workers show that their exposures to EtO are associated with an increased risk of cancers of the white blood

<sup>19</sup> EPA Air Toxics Screening Assessment, 2017 AirToxScreen: <https://www.epa.gov/AirToxScreen>

cells (the infection-fighting cells of the immune system) and an increased risk of breast cancer in females. Evidence in humans indicates that exposure to EtO increases the risk of cancers of the white blood cells, including non-Hodgkin lymphoma, myeloma, and lymphocytic leukemia. Studies also show that long-term exposure to EtO in the community also increases the risk of breast cancer in females. Furthermore, EtO is mutagenic (i.e., it can change the DNA in a cell). Children may be more susceptible to the harmful effects of mutagenic substances.<sup>20</sup>

An analysis of five (5) years of modeled EPA RSEI data revealed that the Lyondell facility alone contributes about 98.6% of the estimated excess cancer risk within its surrounding areas, which 22 times the EPA's acceptable risk level.<sup>21</sup> This is no coincidence. As a facility already emitting dangerously high levels of carcinogens and pollutants, it is irresponsible for TCEQ to allow Lyondell to increase its annual emissions into the surrounding community. Furthermore, the routine pattern of flagrant violations, noncompliance, and all other concerns outlined in this section must be resolved before the TCEQ issues any requested amendments.

## **2. Volatile Organic Compound (VOC) pollution**

Lyondell's Channelview Complex continues to remain a significant contributor to Volatile Organic Compound (VOC) pollution within surrounding areas. Over the last five (5) years, the facility's cumulative annual VOC releases have ranged from 279 to 294 tons per year (558,000 - 620,000 lbs) showing little to no signs of significant pollution reduction or emissions mitigation through process improvements.<sup>22</sup> Such high levels of hazardous air pollution add

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<sup>20</sup> Hazardous Air Pollutants: Ethylene Oxide. Frequent Questions: Health Information About Ethylene Oxide. December 2021. See electronically at:

<https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/frequent-questions-health-information-about-ethylene-oxide>

<sup>21</sup> ProPublica. The Most Detailed Map of Cancer Causing Industrial Air Pollution in the U.S. See *electronically at*: <https://projects.propublica.org/toxmap/>.

<sup>22</sup> TCEQ CR Query, Air Emissions Inventory, Lyondell Chemical Channelview. See electronically at: [https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.pgmdetail&addn\\_id=811588772009251&disp\\_aei=Y](https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=iwr.pgmdetail&addn_id=811588772009251&disp_aei=Y)

considerable burden to the already high levels of adverse health risks within surrounding communities.

VOCs along with NOx, play a major role in the atmospheric reactions that produce ozone, which is the primary constituent of smog. People with lung disease, children, older adults, and active people can be affected when ozone levels are unhealthy. Ground-level ozone exposure is linked to a variety of short-term health problems, including lung irritation and difficulty breathing, as well as long-term problems, such as permanent lung damage from repeated exposure, aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses such as pneumonia and bronchitis.

Furthermore, acute (short-term) inhalation exposure of humans to VOCs (such as benzene) may cause drowsiness, dizziness, headaches, as well as eye, skin, and respiratory tract irritation, and, at high levels, unconsciousness. Chronic (long-term) inhalation exposure has caused various disorders in the blood, including reduced numbers of red blood cells and anemia in occupational settings. Reproductive effects have been reported for women exposed by inhalation to high levels, and adverse effects on the developing fetus have been observed in animal tests. Increased incidences of leukemia have also been observed in humans occupationally exposed to benzene and similar carcinogenic VOCs.

### **Cumulative Impacts of Surrounding Facilities on Human Health**

As mentioned above, the areas surrounding Lyondell's refinery are communities of color with a large and low-income population that is overburdened by hazardous and other air pollution, including from multiple refineries and petrochemical facilities, sewage treatment facilities, hazardous waste (Superfund) sites, and concrete batch plants (see Figure 1: Map of the industrial burden in communities near Lyondell). Cumulative impacts refer to the total burden –

positive, neutral, or negative – from chemical and non-chemical stressors and their interactions that affect the health, well-being, and quality of life of an individual, community, or population at a given point in time or over a period of time.<sup>23</sup> TCEQ must consider these cumulative health and industrial impacts when approving the Lyondell permit amendment as well as other refinery permits and facility corrective action plans in the immediate area.

#### IV. CONCLUSION

Air Alliance Houston (AAH) is very concerned about the impacts of the Lyondell Chemical Company (Lyondell) facility on air quality and public health in and around the Channelview, Texas community as well as the greater east Harris County area as a whole. The facility displays a pattern of disregard for the Clean Air Act (CAA) and already exerts a significant pollutive burden on surrounding residents that has resulted in higher cancer risks and adverse health outcomes. Therefore, Commenters request the following:

- **TCEQ should deny the permit amendment listed above outright and require a corrective action plan and timeline from Lyondell for how they will reach compliance with current emissions standards, prevent future unauthorized emissions, and provide for the removal/decommissioning of specific facility equipment with relevance to the renewal application.**
- **TCEQ should require that Lyondell implement additional emission control/reduction measures and technologies given its routine violation of permit limits and air quality standards as outlined above and also to reduce the likely higher-than-reported actual emissions of various pollutants.**

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<sup>23</sup> United States Environmental Protection Agency. 2022. *Cumulative Impacts*. See electronically at: [https://www.epa.gov/system/files/documents/2022-01/ord-cumulative-impacts-white-paper\\_externalreviewdraft-508-tagged\\_0.pdf](https://www.epa.gov/system/files/documents/2022-01/ord-cumulative-impacts-white-paper_externalreviewdraft-508-tagged_0.pdf)

- **TCEQ must consider environmental justice concerns during decision-making on this and future permit applications from Lyondell due to the cumulative impact of environmental and health harms caused by the operation of this facility.**

Should there be any questions about these comments, please feel free to contact the undersigned representative at any time. We appreciate your urgent attention and response to these matters.

Respectfully submitted,

/s/

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