

Evaluation of LA's Chemical Release Incidents (2020-2023)
Performed in Support of
2025 Proposed Fenceline Air Monitoring Legislation
September 29, 2024

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LA's “Most Serious” Chemical Release Incidents (2020 – 2023)

□ “Most Serious” Chemical Release Incidents involving:

- Reported Deaths
- Injuries
- Evacuation Orders
- Shelter-In-Place Orders



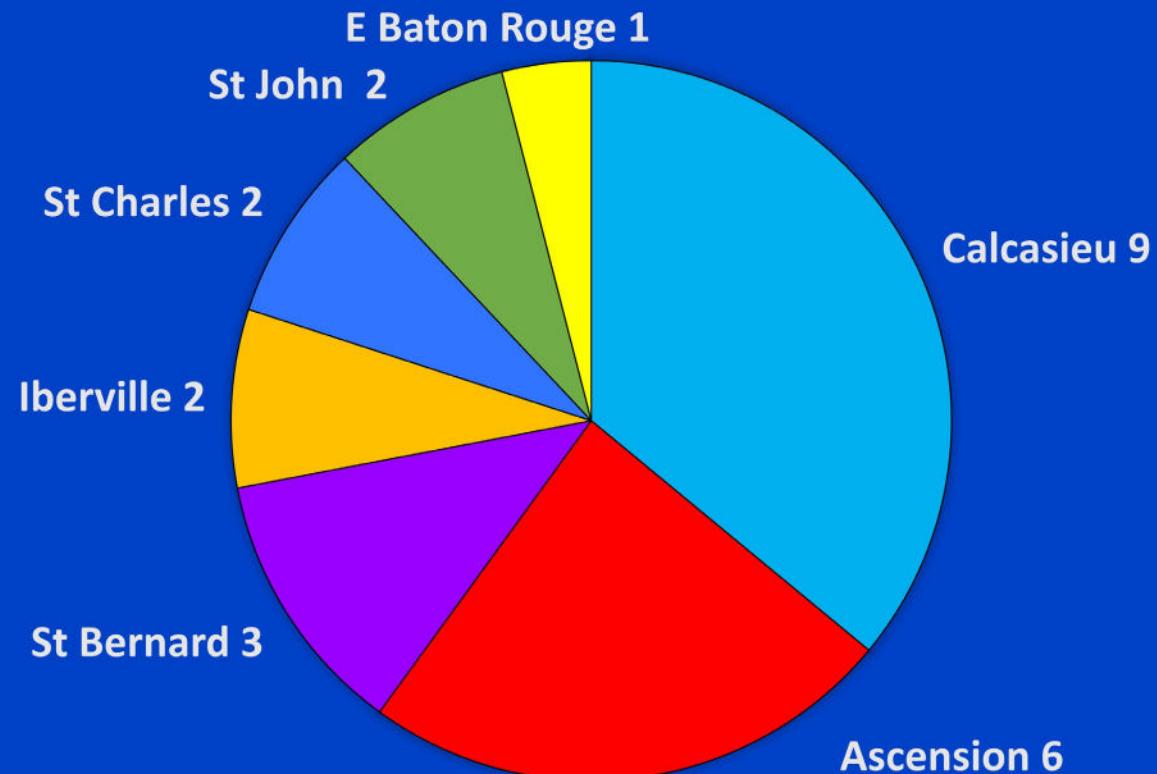
□ Proposed 2025 legislation

- Real-time Fenceline Monitoring & Alert System
 - 17 highest risk pollutants
 - 115 highest risk facilities
 - 96 chemical manufacturing facilities
 - 19 petroleum refineries

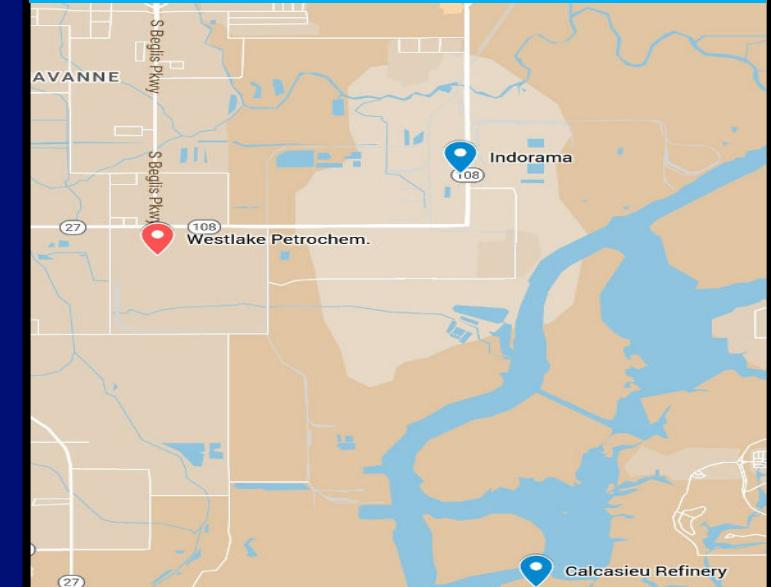


Summary Results

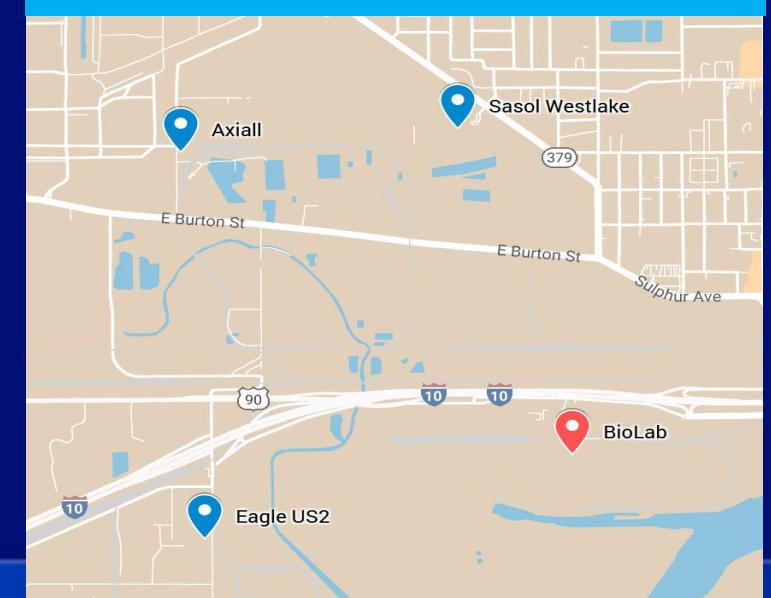
Number of Incidents by Parish (01/20 – 12/23)



South of I-10



North of & Near I-10



Westlake Petrochemical, Sulphur, LA: Two 2021 Fires (06/25 & 09/27)

6/25 lube oil fire. 9/27 6 Workers Hospitalized in Flashfire



6/25 "No offsite impact. Fire & black smoke is just from flares." Parish EMS, 9/27 ethylene cracker unit fire 1 worker w/2nd degree burns, broken leg, pelvis filed lawsuit. NO LDEQ records of either fire.

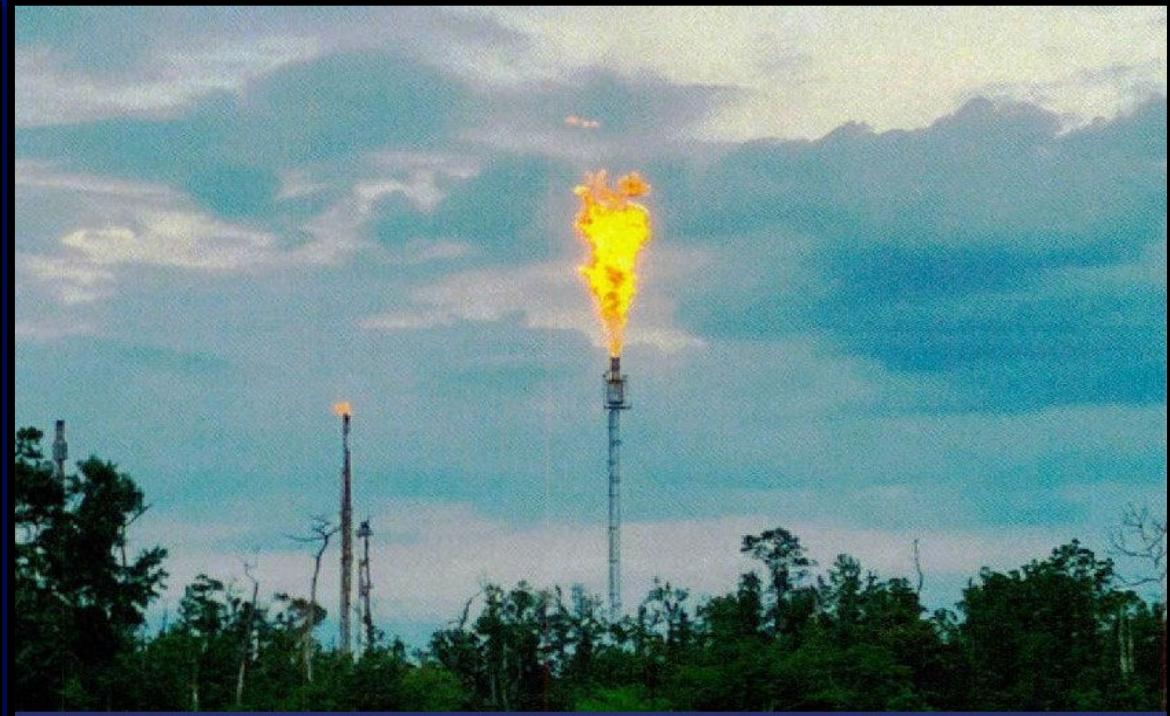
Calcasieu Refining, 14-Hr Naptha Tank Fire 06/03/2023

5 workers injured, >12,100 evacuated, >33,000 sheltered in place (13 hours)



Lightning caused 13-hr release of 10,250 lbs of benzene* (50% of annual emissions), >163 tons of PM2.5 (100% of annual emissions). Air monitoring, "so far finding non-detect readings", Langley said.

06/10/2022 Indorama 5-Hr Pyronaptha Spill, Non-essential workers evacuated; Hwy 108 closed; benzene detected offsite. 08/24/2022 Boiler Fail On-going Flaring for weeks.



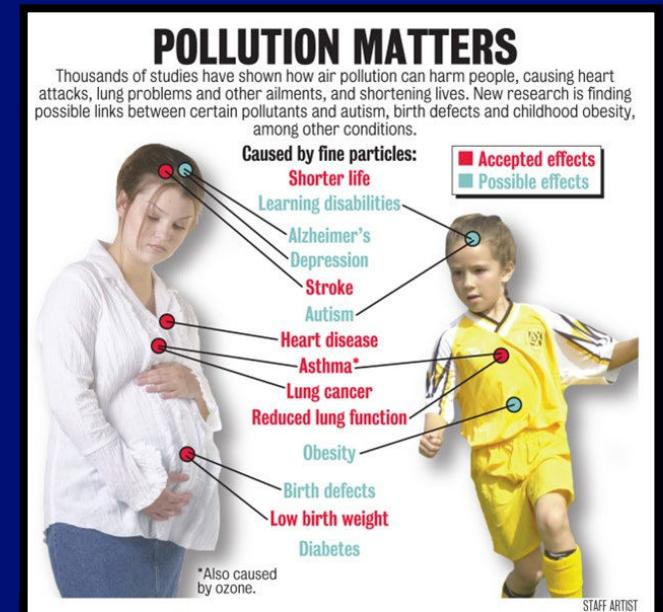
"A toxic dragon is what it was -- just puffing toxic smoke and fire," **James Hiatt**, director of For a Better Bayou, said of the flare at the Indorama plastics plant in Westlake, Louisiana, that rattled the windows of local homes.

Spill:137 lbs benzene; Flaring: 287lbs 1,3-butadiene 358lbs benzene. LDEQ Consent Agreement Still Ongoing

Potential Health Effects

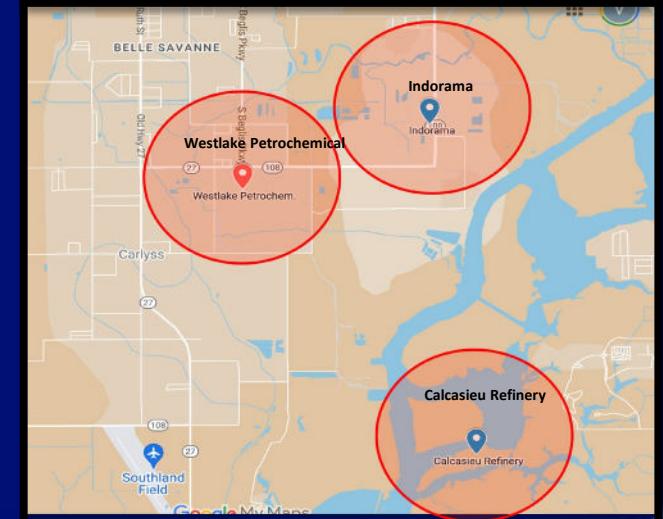
PM2.5 Causes:

- **~8.9 million deaths/year worldwide**
 - Cardiovascular & respiratory disease, lung cancer
- **Onset, exacerbations of heart disease, stroke, asthma**
- **Likely causes Alzheimer's, autism, birth defects, diabetes**



Benzene Health Effects:

- **Acute exposure:**
 - Dizziness, nausea, headache, convulsions, coma
- **Chronic exposure:**
 - Leukemia, anemia, adverse reproductive outcomes



BioLab Westlake Fire, 50-Hr Chlorine Leak & Fire, 08/27/2020

>36,000 Residents ordered to Shelter in Place (28 Hrs)



450,000 lbs (22 x annual emissions) chlorine released. EPA detected chlorine in 9 neighborhoods, 2 violated regulation limits.
LDEQ Langely, EPA's plane "did not register any significant hits. He was unaware of the EPA ground-level monitoring.

BioLab Westlake 3-Hr Chlorine Leak 03/22/2023

> 10,000 Residents Sheltered in Place



9:20am process upset released 817 lbs of chlorine, 247 lbs ammonia in 3 hrs. Phillips 66 reported cloud. BioLab waited >24 hrs to report. LDEQ, "We didn't get any readings ...in the range of being harmful to human health."

Biolab 07/02/2024



 A smoke cloud pours out of the Bio-Lab chlorine products warehouse in Westlake, where local and state officials confirmed a fire started Wednesday morning, July 2, 2024. (Photo courtesy of Chad Moreno)



No information on chemicals or quantities released in LDEQ EDMS

Sasol Westlake Explosion, 2-Hr Fire (10/15/2022)

Office of Homeland Security Ordered >1700 Residents to Shelter-In-Place Houston River Rd Closed



17,596 lbs Aluminum Triethyl (ATE), a napalm alternative, released in 2 hrs. Sasol, "There were no off-site impacts and no call to action for the nearby community." LDEQ 10/15 Report, "Off-site impact was smoke."

Axiall Westlake, Lake Charles 105-Minute Vinyl Chloride Leak, 12/14/21

17,500 Residents, Students at 3 Schools within 3 Miles Likely Exposed



Equipment leak caused 105-minute release of 14,800 lbs of Vinyl Chloride (3 x annual emissions.) Axiall and nearby Sasol workers ordered to Shelter-In-Place. Axiall, LDEQ Responder provided NO INFO to local schools, residents, or public.

Eagle US2 (Westlake South), Explosion & 2-Hr Fire 01/27/2022

5 Workers Hospitalized, 7,000 Sulphur & Westlake Students Sheltered-In-Place



>103,000 lbs HCL in 2 hrs. Westlake spokesperson, "No offsite impact" false report, detected 3.1ppm VOCs at fenceline.

02/10/2022 Eagle US2 (Westlake S.) 13-Hr Power Fail, 12/11/2022 Valve Leak

Workers and 9,435 residents within 3 miles evacuated on 2/10



VINYL CHLORIDE: THE POISON THAT MAKES THE PLASTIC

Considerations for the EPA's Evaluation of Vinyl Chloride Under the Toxic Substances Control Act

JULY 2024



13 hr Power fail: 2,053lbs vinyl chloride*, 15 hr Open Valve 11,759lbs vinyl chloride. Total vinyl chloride 13,812lbs (2.6 times annual emissions). No public notification of 12/11 release.

Eagle US2 (Westlake S.) & Axiall Release Health Effects

Vinyl Chloride

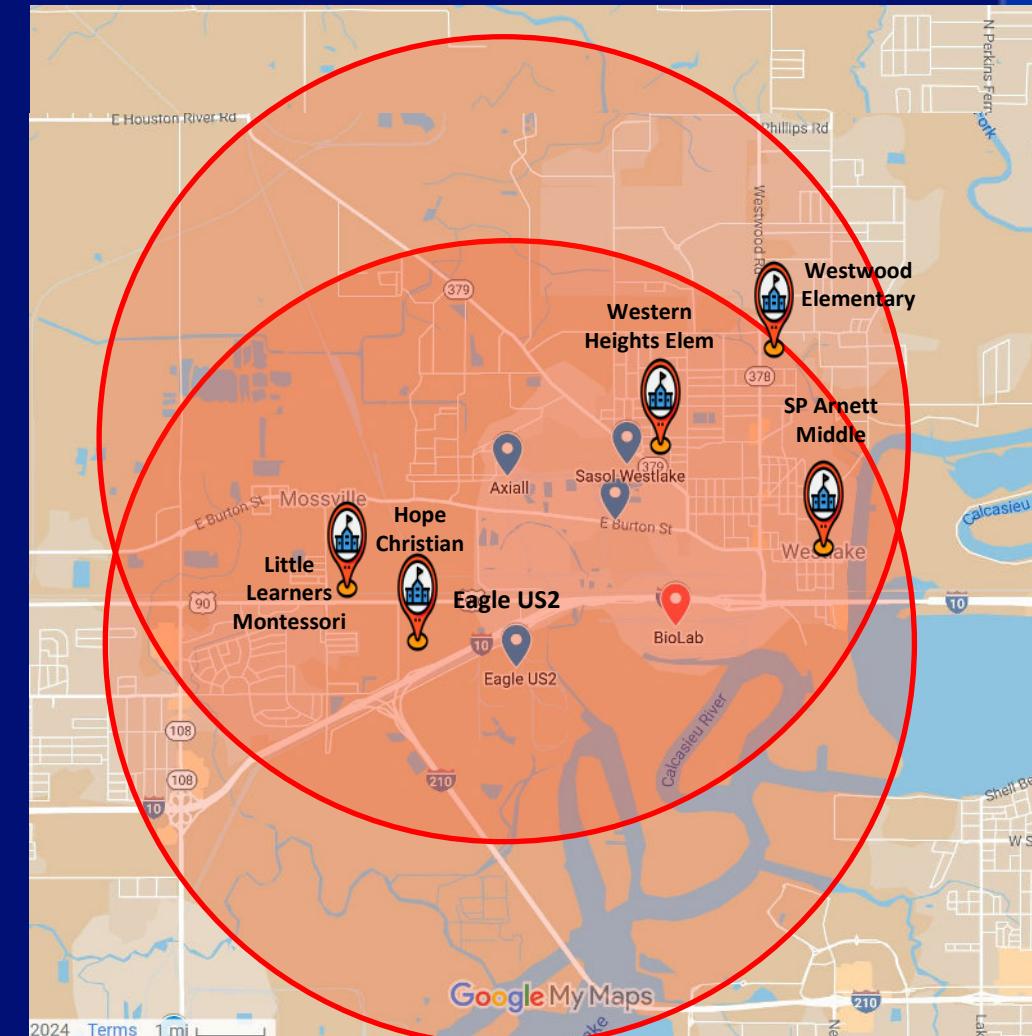
- Acute exposure:**
 - Dizziness, drowsiness, headache, loss of consciousness.
- Chronic exposure:**
 - Liver, lung, breast, & brain cancer; leukemia.

Hydrochloric Acid

- Acute exposure**
 - Coughing, respiratory tract inflammation, chest pain.
- Chronic exposure:**
 - Gastritis, chronic bronchitis, dermatitis.

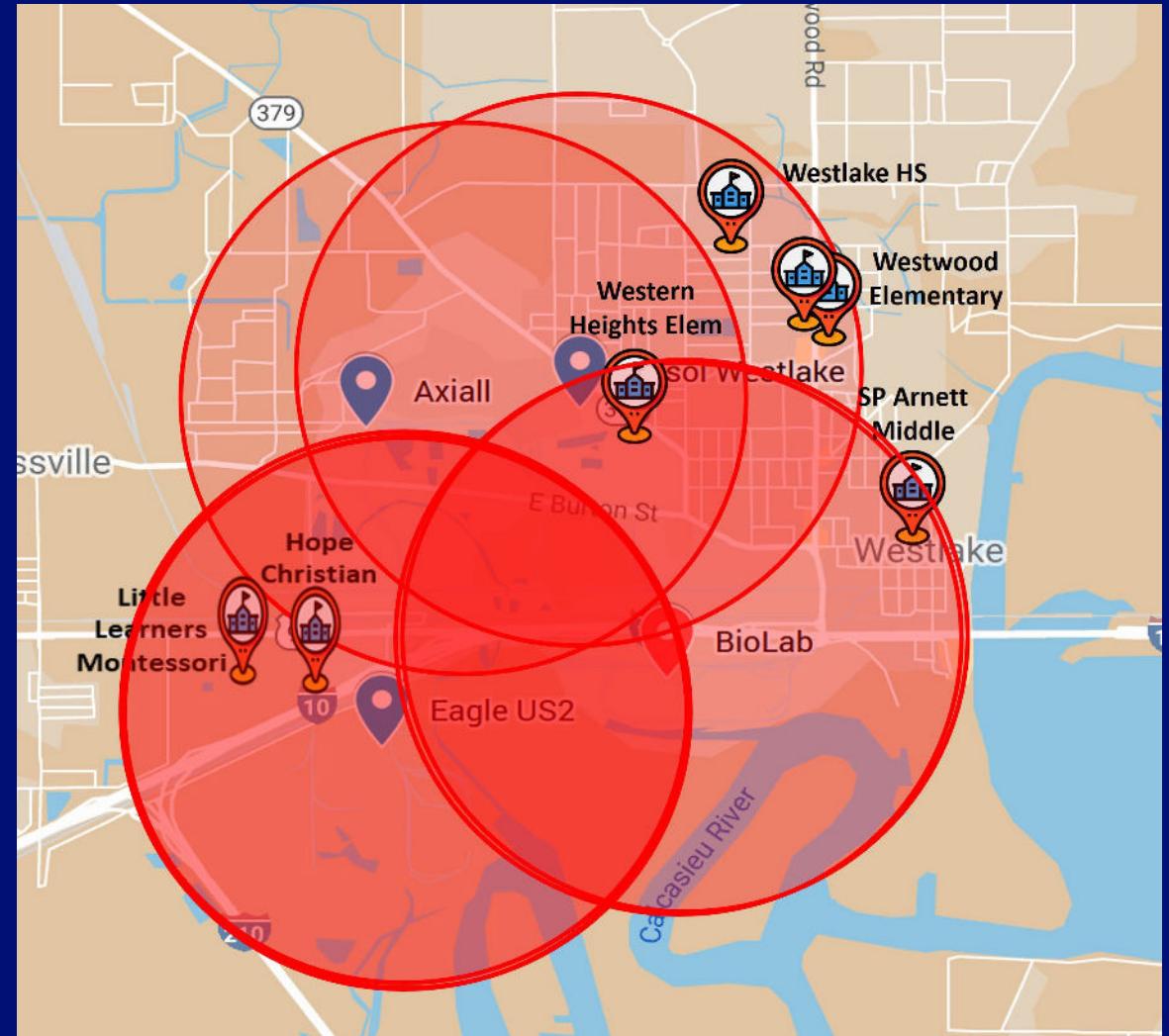
Chlorine

- Acute exposure**
 - Coughing, respiratory tract inflammation, chest pain.
- Chronic exposure:**
 - Flu-like symptoms, reactive airways dysfunction syndrome (RADS).
- Children most vulnerable due to developing brains, lungs, neurological systems.***

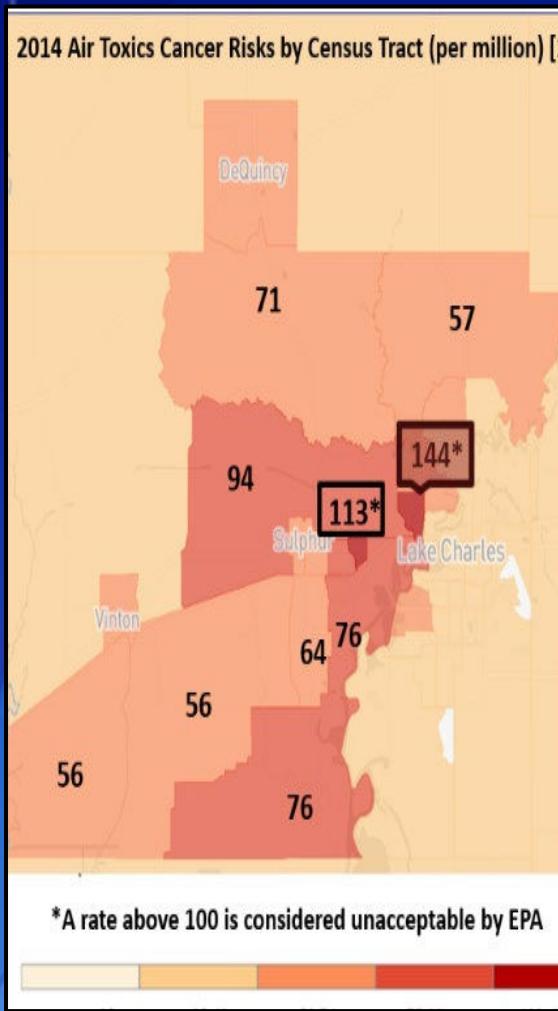


Residents, schools within 1-mile of serious chemical release sources.

- Vinyl Chloride
- Hydrochloric Acid
- Chlorine
- Ammonia
- ATE (napalm alternative)
- PM2.5



EPA 2014 Air Toxics Assessments Louisiana Risk Drivers



Tract 26

Cancer risk:
144 per million
(National average: 32)

Pollutant Risk
58% Ethylene Oxide
17% Formaldehyde
11% Hydrazine

Tract 31.02

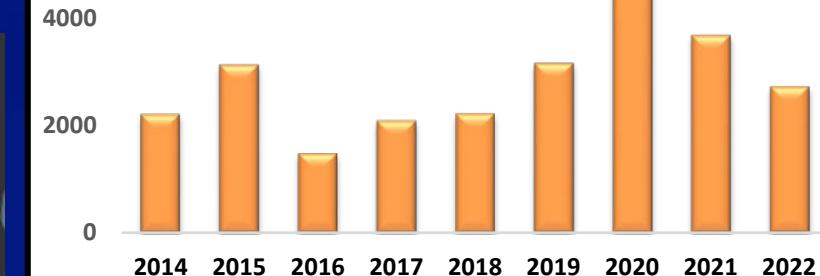
Cancer risk:
113 per million
(National average: 32)

Pollutant Risk
53% Ethylene Oxide
24% Formaldehyde
3% Acetaldehyde
3% 1,2-Dichloroethane



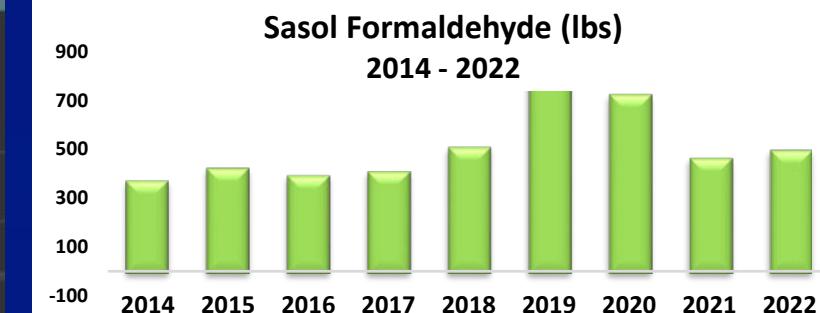
Sasol Ethylene Oxide (lbs)

2014 - 2022



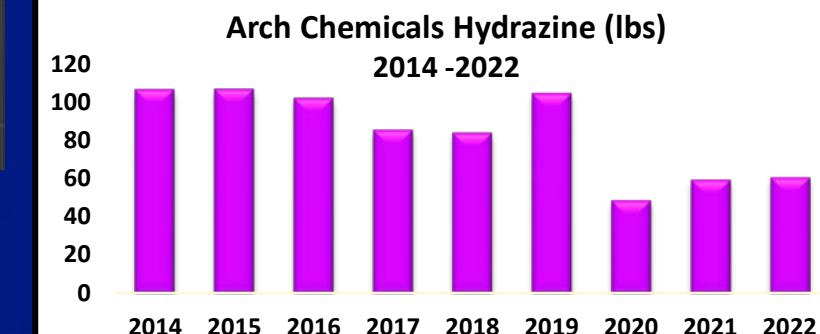
Sasol Formaldehyde (lbs)

2014 - 2022



Arch Chemicals Hydrazine (lbs)

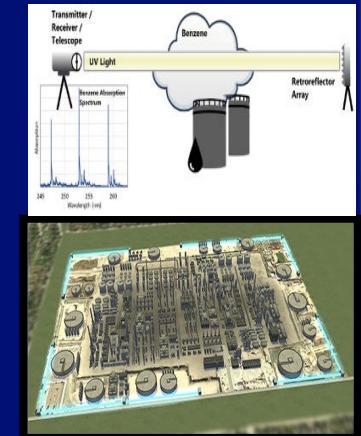
2014 - 2022



EPA-Recommended Real-time Fenceline Monitors for Refineries

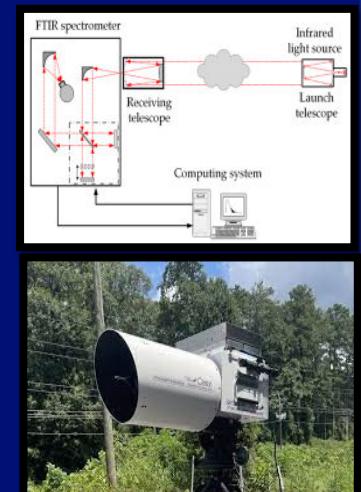
□ UV Differential Optical Absorption Spectroscopy (UV-DOAS)

- Uses ultraviolet light beam to detect pollutants (up to 500 m)
- **Capable of simultaneously measuring 20 pollutants**
- **Average Costs \$250,000 Capital, \$25,000 Annual***
 - 4 beam-detector systems, 4 equipment shelters, alert system

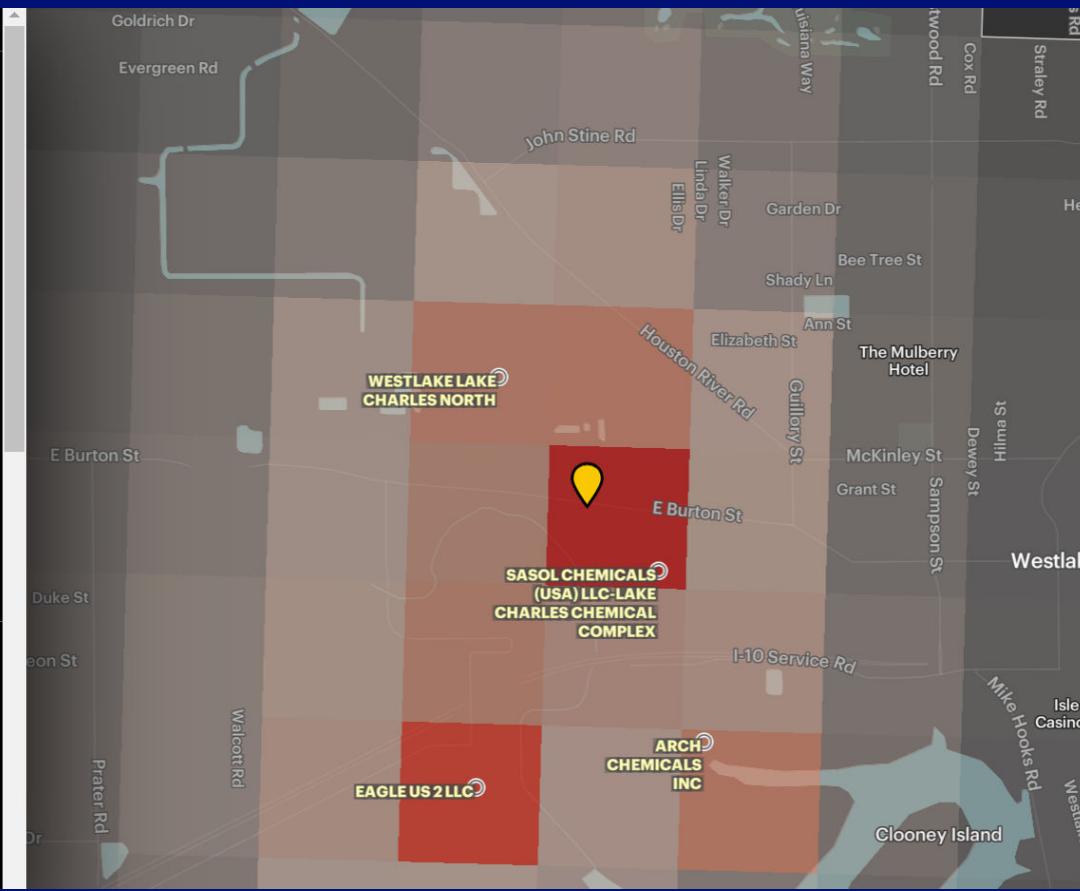


□ Open-Path Fourier Transform Infrared Spectroscopy (OP-FTIR)

- Uses infrared light beam across an open path (400 – 500 m)
- **Capable of simultaneously measuring > 100 pollutants**
- **Cons: Low benzene sensitivity, not recommended for refineries**
- **Average Costs \$320,000 - \$500,000 Capital, \$24,000 Annual***
 - 4 FTIR monitors, 4 equipment shelters, alert system



EXTRA SLIDES



SASOL CHEMICALS (USA) LLC-LAKE CHARLES CHEMICAL COMPLEX

Contributes about **80.6%** of the estimated excess cancer risk here

Emits **Ethylene oxide, Benzene, Butadiene, 1,3- and 7 more carcinogens**.

Note: The EPA's reporting system does not allow facilities to distinguish between hexavalent and trivalent chromium. Hexavalent chromium is a known carcinogen, whereas trivalent chromium is not. The cancer risk associated with all facilities that report chromium compounds may be inaccurate. To learn more, read our [methodology](#).

[Jump to this facility →](#)

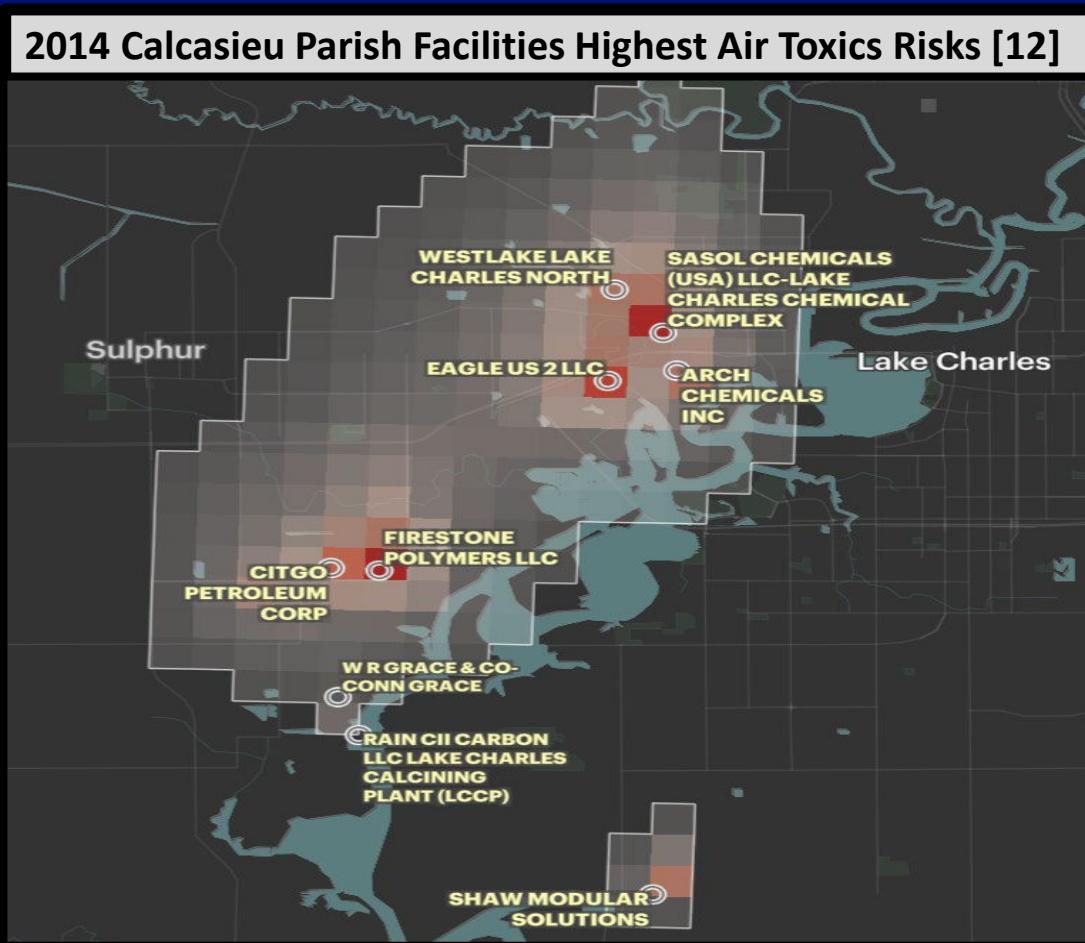
PHILLIPS 66 LAKE CHARLES REFINERY

Contributes about **16.7%** of the estimated excess cancer risk here

Emits **Benzene, Nickel compounds, Polycyclic aromatic compounds and 7 more carcinogens**.

Calcasieu Parish Facilities: Highest PM_{2.5} Emissions & Air Toxics Risks

Calcasieu Parish Top 10 2021 PM _{2.5} Emitting Facilities [11]	
Facility Name	2021 PM2.5 (tons)
Citgo Petroleum Corp - Lake Charles Manufacturing Complex*	451
Eagle US 2 LLC - Lake Charles Complex*	264
Entergy Louisiana LLC - Roy S Nelson Coal-fired Power Plant	205
Sasol North America Inc - Lake Charles Chemical Complex*	203
Phillips 66 Co - Lake Charles Refinery	165
WR Grace & Co - Conn Grace*	150
Entergy LA LLC - Nelson Industrial Steam Co (NISCO)	146
PPG Industries Inc - Silica Plant	94
Louisiana Integrated Polyethylene JV LLC	91
Lake Charles Calcining Plant*	76
TOTAL	1,845
*Highest Air Toxics Risks	



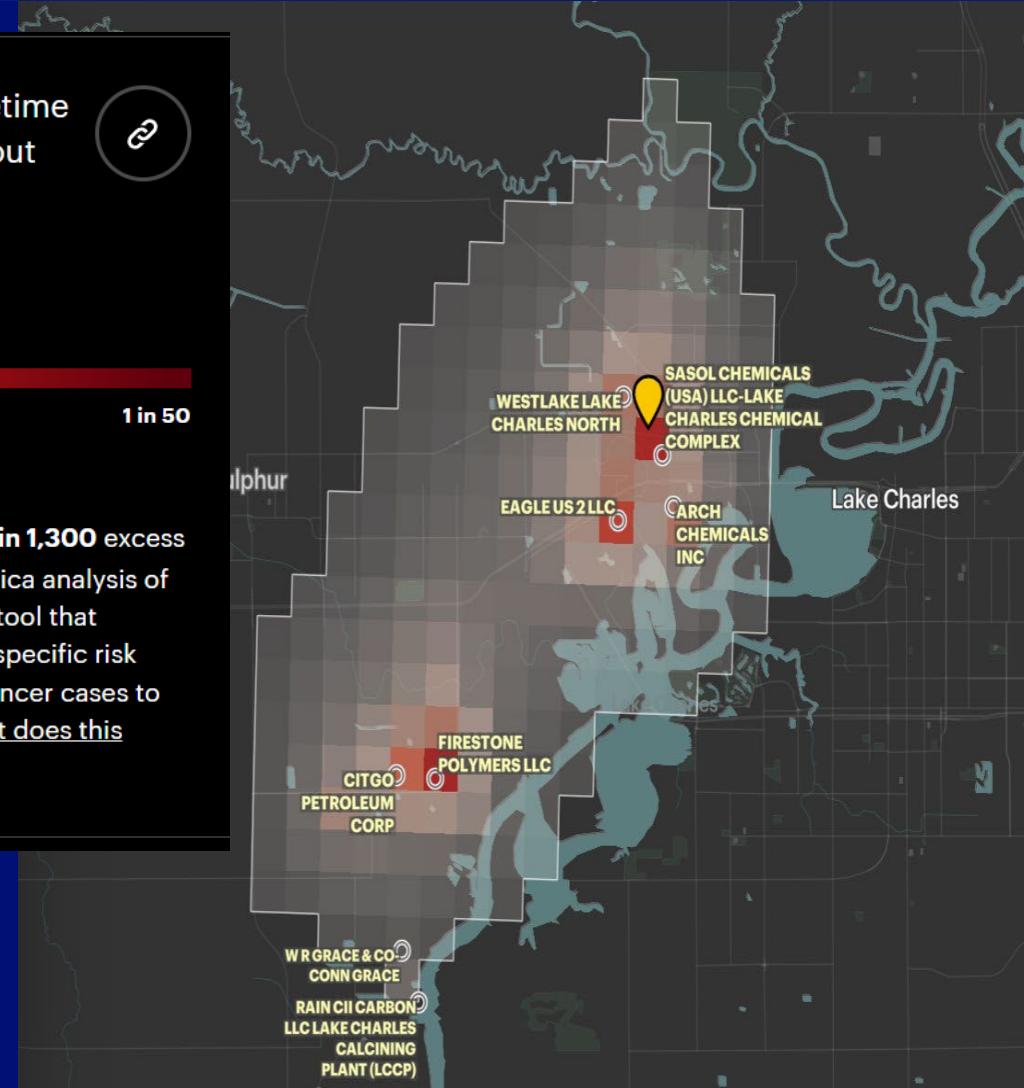
*Half (50%) of top PM_{2.5} emitting facilities also drive highest air toxics cancer risks

This location has an estimated excess lifetime cancer risk from industrial sources of about

1 in 1,300, or 7.8 times the EPA's acceptable risk.



Emissions from nearby facilities add an estimated **1 in 1,300** excess lifetime cancer risk here  , according to a ProPublica analysis of five years of EPA modeling. Our map is a screening tool that indicates areas of potential concern. It is not a site-specific risk assessment, and cannot be used to tie individual cancer cases to emissions from specific industrial facilities. [So, what does this mean for me?](#)



Facility Name and Frequency of Incidents

(8/27/20 – 8/24/23)

Facility Name	# Incidents	Parish
Honeywell International Inc - Geismar Complex	3	Ascension
Westlake Petrochemicals LLC - Poly III	2	Calcasieu
Bio-Lab Inc, A KIK Custom Product Company	2	Calcasieu
International Matex Tank Terminals - St Rose Terminal	2	St Charles
Marathon Petroleum Co LP Garyville Refinery	2	St John
Chalmette Refining LLC - Chalmette Refinery	2	St Bernard
Blue Cube Operations LLC (Olin)	1	Iberville
Indorama Ventures Olefins LLC - Lake Charles Facility	1	Calcasieu
Axiall LLC - Westlake Lake Charles North	1	Calcasieu
PCS Nitrogen Fertilizer LP - Geismar Agricultural Nitrogen & Phosphate Plant	1	Ascension
Calcasieu Refining Company	1	Calcasieu
Sasol North America Inc - Lake Charles Chemical Complex	1	Calcasieu
CF Industries Nitrogen LLC - Donaldsonville Nitrogen Complex	1	Ascension
BASF Corp - Geismar Site	1	Ascension
The Dow Chemical Co - Louisiana Operations	1	Iberville
Eco Services Operations LLC - Sulfuric Acid Plant	1	E Baton Rouge
Eagle US 2 LLC - Lake Charles Complex	1	Calcasieu
Valero Refining - Meraux LLC - Meraux Refinery	1	St. Bernard