

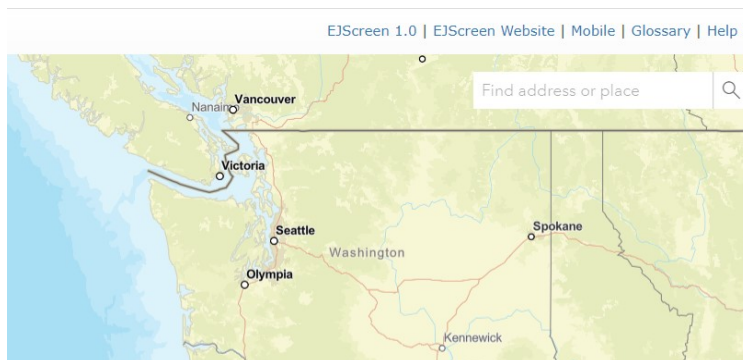
## EJSCREEN Instructions

The EPA EJScreen is an environmental justice mapping tool that assesses environmental and demographic indicators within a specific geographic region, or buffer zone. For the Sacrifice Zone Policy, the EJScreen is used to determine if a four mile radius zone around a facility of greatest concern qualifies as a sacrifice zone. The EJScreen provides two measures of health risk that we use to determine if an area is a sacrifice zone – the cancer risk and respiratory health index, both provided as part of the 2017 Air Toxics Cancer Risk and Respiratory HI (both formerly under the National Air Toxics Assessment, or NATA). **CHEJ defines a sacrifice zone as an area within a 4-mile radius that has a 2017 Air Toxics Cancer Risk value and/or a 2017 Air Toxics Respiratory Hazard Index value at or above the 70th percentile for the state using the US EPA EJScreen.**

Use the following instructions to observe if your 4-mile radius zone qualifies as a Sacrifice Zone. The EJScreen Mapping Tool can be accessed at <https://ejscreen.epa.gov/mapper/>.

Tutorial videos on how to use the EJScreen can also be accessed here at <https://www.epa.gov/ejscreen/ejscreen-videos>.

1. Identify a facility of greatest concern. This facility will mark the center of the four-mile radius for the sacrifice zone.
2. Search the location of your facility using the **“Find address or place”** search box at the far top-right of the mapping screen.

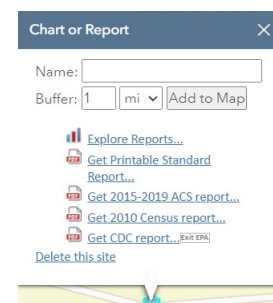


3. Enter the physical address of the facility of greatest concern in the search box and click **Enter**.

Facility of greatest concern:

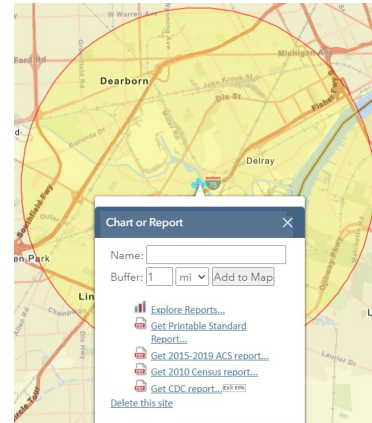
Street Address, City, State, Zip Code

4. On the EJScreen map, a plus sign (+) will mark the address you entered. Click the plus to create a **Chart or Report** pop-up menu. Write the name of the facility in the space provided.



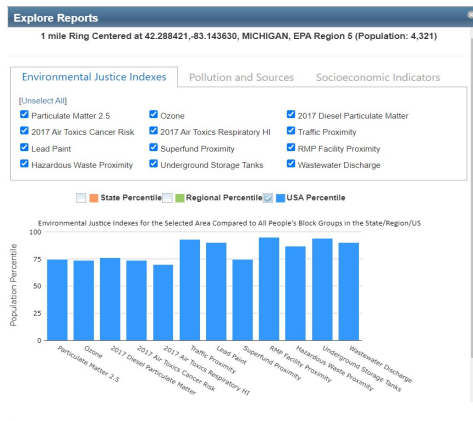
5. Change the Buffer radius from 1 mile to 4 miles.

- Click **Add to Map** to view the four-mile radius zone around the chosen facility.
- View the environmental indicators to see if the sacrifice zone meets the health risk criteria. Click the “**Explore Reports...**” link on the **Chart or Report** pop-up menu.

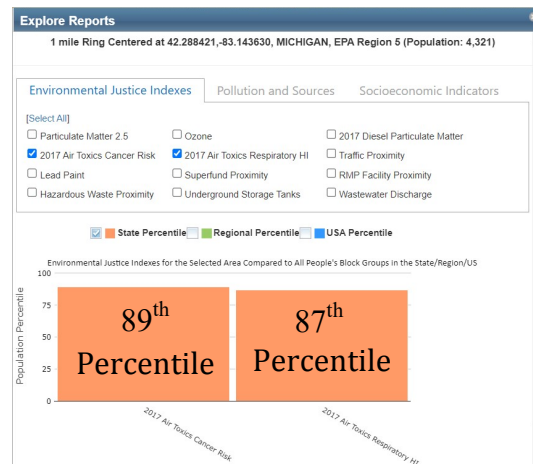


The following instructions will be displayed using an example from the *Marathon Petroleum Co. LP* located in Detroit, Michigan (301 S Fort St, Detroit, MI 48217):

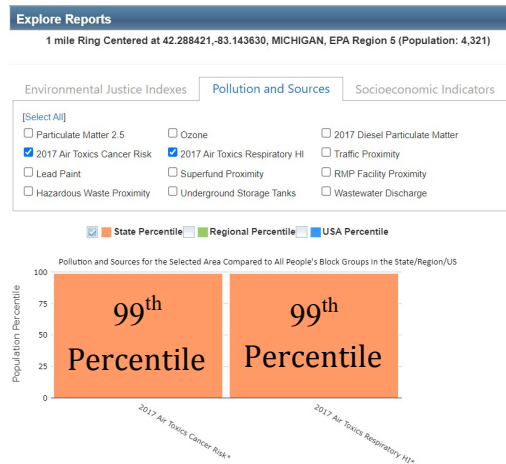
- In the Explore Reports screen look at the **Environmental Justice Indexes** tab. Change the view from *USA Percentiles* (blue graph) to *State Percentiles* (orange graph). Unclick the USA Percentiles box under the Socioeconomic Indicators tab, then select the State Percentiles box. This view will show the state percentiles for all 12 environmental indicators.



- View the 2017 Air Toxics Cancer Risk and 2017 Air Toxics Respiratory HI. We are interested in only looking at the 2017 Air Toxics Cancer Risk and 2017 Air Toxics Respiratory HI data. Unselect all other environmental indicators that are not the 2017 Air Toxics Cancer Risk or 2017 Air Toxics Respiratory HI.



10. Repeat steps 8 and 9 now looking at the **Pollution and Sources Indexes** tab within the Explore Reports menu.




Using the Pollution and Sources indicators for the 2017 Air Toxics Cancer Risk for the 4-mile radius zone, with Marathon Petroleum Company LP in Detroit, MI as the center, the area is in the 99th percentiles for the state. While the 2017 Air Toxics Respiratory Hazard Index is in the 99th percentile for the state.

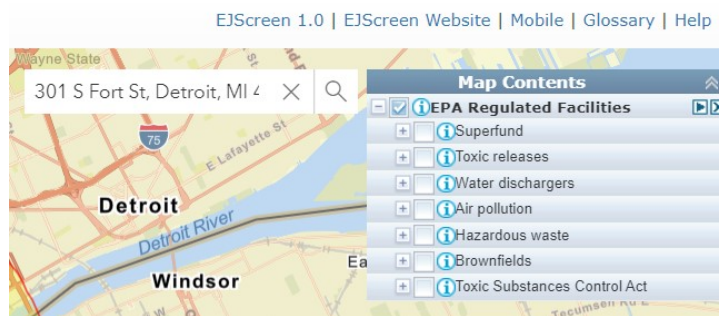
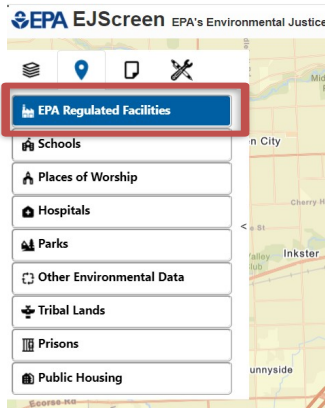
Using these two environmental indicators, the zone can qualify as a sacrifice zone. If the zone does not qualify as a sacrifice zone using the environmental indicators, it is important to also check the Environmental Justice Indexes to see if either the 2017 Air Toxics Cancer Risk (89<sup>th</sup> percentile) or the 2017 Air Toxics Respiratory Hazard Index (87<sup>th</sup> percentile) meets the sacrifice zone qualifications.

*A sacrifice zone can be established if either one or both of these environmental indicators and/or EJ Indexes is at or above the 70th percentile for the state. This zone can submit an application to establish itself as a sacrifice zone.*

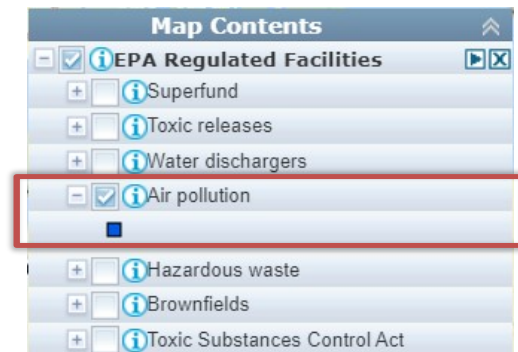
## Find Official Facility Name or Registry ID Number:

This information will be needed when searching the facility's hazardous air pollutants (HAPs) emissions using the EPA ECHO database.

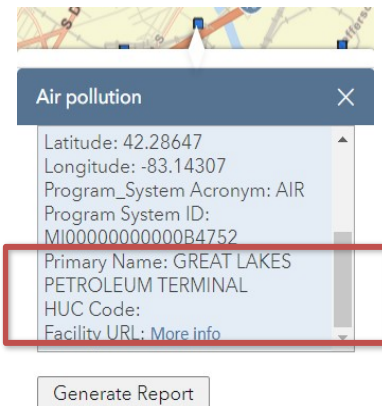
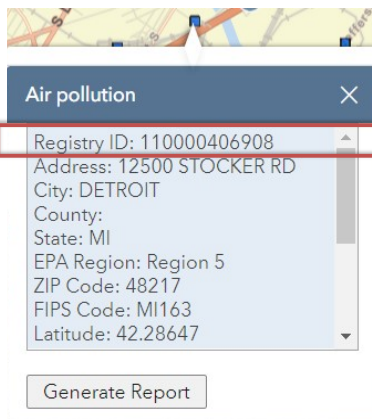
1. In the top far-left corner of the map screen, click the **Places** icon  (which is the second icon from the left) on the floating menu.
2. Next, click the **EPA Regulated Facilities** tab. This will create another menu on the far right-side of the map screen called **Map Contents**.



3. Select the **Air Pollution** check box to view facilities that report air emission releases to the EPA.



4. Click on the facility (identified on the map with a dark blue box) to view the **Air Pollution** pop-up tab. Take note of the **Registry ID** and **Primary Name**.





## ECHO Database Instructions

The EPA Enforcement and Compliance History Online (ECHO) is an online database that provides detailed information on a reporting facility's enforcement, compliance, inspection, violation and release history. For the Sacrifice Zone Policy, the ECHO database is used to calculate the Hazardous Air Pollutants (HAPs) released by all air emitting facilities located within the sacrifice zone. **In a sacrifice zone all aggregate Hazardous Air Pollutants (HAPs) in the four-mile radius surrounding the facility of greatest concern is restricted to under 25 mixed or 10 individual tons of air emissions a year.**

The ECHO database home search page can be found at <https://echo.epa.gov/>. Tutorial videos can also be accessed here at <https://echo.epa.gov/help/tutorials>. This example will be following the search of the **Marathon Petroleum Co., LP** facility.

1. On the ECHO database home quick search page, under the “**Facility Name/ID**” tab within the Quick Search box type in either the **facility name or facility IDnumber**. The primary facility name and facility registry ID number can be found using the **EJScreen Step-By-Step Instructions**.

**Quick Search**

Search By

Location Facility Name/ID

Marathon Petroleum Co LP - Michigan Refining Div Search

[More Search Options](#)

Use EPA's Enforcement and Compliance History Online website to search for facilities in your community to assess their compliance with environmental regulations. You can use ECHO to:

- Search for Facilities
- Investigate Pollution Sources
- Search for EPA Enforcement Cases
- Examine and Create Enforcement-Related Maps
- Analyze Trends in Compliance & Enforcement Data

[Read the Quick Start Guide](#) [Watch a Video Tutorial](#) [Explore the Tool Guide](#)

2. The ECHO database will direct you to a new page called the “**Facility Search Results**.” Click on the correct facility (matching the facility name or facility ID) that is located in your sacrifice zone.

**Facility Search Results**

Missouri, Nebraska, North Carolina, Pennsylvania, Vermont, Washington, West Virginia, and Wisconsin are working with EPA to fix problems with their Clean Water Act violation data. [Read More...](#)

Map Legend EJSCREEN Add EJ Summary Map US State Zoom In Enter city, state, and/or zip code

Resync map and table

Facility Name Mapped Street Address City State FRS ID Reports Count of EJ Index Above 80th Percentile (5) Compliance Monitoring Activity (5 years) Significant Violations Quarters with Noncompliance (5 years) Formal Enforcement Actions (5 years)

Facility Name	Mapped	Street Address	City	State	FRS ID	Reports	Count of EJ Index Above 80th Percentile (5)	Compliance Monitoring Activity (5 years)	Significant Violations	Quarters with Noncompliance (5 years)	Formal Enforcement Actions (5 years)
MARATHON PETROLEUM CO LP		1300 SOUTH PORT STREET	DETROIT	MI	110000554828		1	114	Yes	12	0

**Facility Summary**

Select a facility row from the search results table.

**Current Search**

1 Facilities Found

**Selected Criteria**

Media Program: All Media Programs  
Facility Name or ID: 110000554828

**Explore Enforcement and Compliance Criteria**

☐ 1 Facilities with Current Violations  
☐ 1 Facilities with Significant Violations  
☐ 1 Facilities with Violations (3 years)  
☐ 0 Facilities with Formal Enforcement Actions (5 years)  
☐ 1 Facilities with Informal Enforcement Actions (5 years)

**Filter Facilities**

Not Filtering on 1 Facilities

☒ Only Show Matches

**Facility Characteristics**

Facility Type  
☐ Major ☐ Minor

Facility Permit/ID  
☐ Has Water Permit (ICIS-NPDES) ☐ Has ICIS-Air ID  
☐ Has RCRA ID ☐ Has TSI Releases

- A new page will open to the “Detailed Facility Report” page. Locate the “**Air Pollution Report**” in the top right section of the “**Facility Summary**.” The Air Pollution Report is recognizable by the little green box icon with an “A.”

### Detailed Facility Report

**Related Reports**

- Enforcement Case Report
- Air Pollutant Report**
- EPA Facility Documents
- View Envirofacts Reports

- On the Air Pollution Report page, scroll down to the “**Emissions**” section to locate the “**TRI HAPs**” column. Record the value of total TRI HAPs in pounds for the most current year displayed.

**Emissions**

Please read important information about emissions data sources and reported values

**Total Aggregate Emissions Data**

Program	Pollutant	Units	Trend	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
NEI	Total CAPs	Pounds		3,189,231.03			3,065,208.86			2,838,243.74			
GHG	Total GHGs	MTCO <sub>2</sub> e		724,939.17	738,087.87	878,758.86	906,553.66	884,668.05	896,579.70	823,521.35	825,403.74	862,855.88	788,878.47
NEI	Total HAPs	Pounds		88,813.87			122,108.91			96,060.82			
NEI	Total VOCs	Pounds		1,357,850.13			871,221.90			685,303.67			
TRI	TRI Air Toxics	Pounds		308,177.90	201,466.60	253,062.70	234,878.80	155,429.55	152,783.60	144,582.40	151,205.20	144,869.10	131,990.00
TRI	TRI Criteria Pollutants	Pounds		6,976.40	4,267.10	38,391.50	27,143.50	15,344.20	16,155.20	22,134.60	18,946.10	26,333.80	26,040.40
TRI	TRI HAPs	Pounds		154,095.90	123,473.60	116,651.70	108,262.80	64,671.50	65,076.60	53,101.40	62,088.20	54,650.10	50,118.00
TRI	TRI Ozone Precursors	Pounds		255,737.00	135,401.80	163,050.40	157,243.60	94,037.95	89,797.90	73,743.40	87,283.90	72,238.10	62,749.60
TRI	TRI PBTs	Pounds		30.90	24.60	36.70	42.80	57.50	46.60	58.40	38.20	45.10	41.00

Program	Pollutant	Units	Trend	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
TRI	TRI HAPs	Pounds		154,095.90	123,473.60	116,651.70	108,262.80	64,671.50	65,076.60	53,101.40	62,088.20	54,650.10	50,118.00

- Convert the total TRI HAPs in pounds into tons:

$$\text{Pounds} \times 0.0005 = \text{tons}$$

$$39,622.30 \text{ pounds} \times 0.0005 = 19.811 \text{ tons}$$

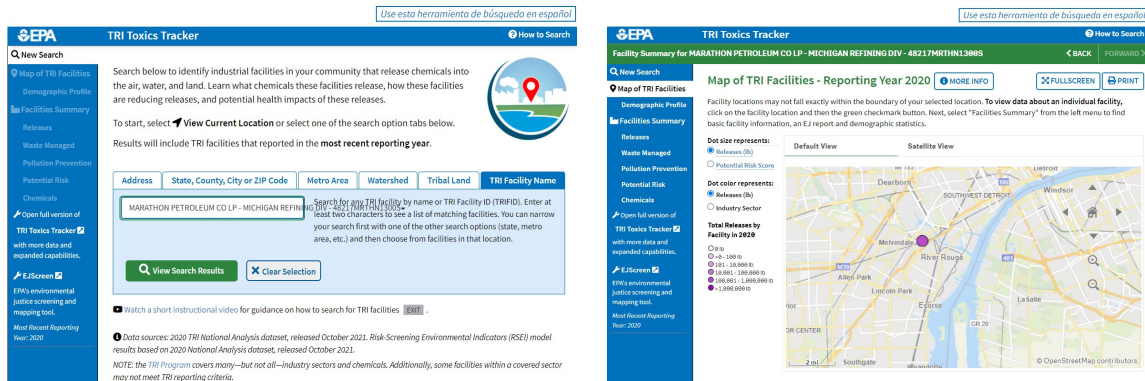
*The Neighborhood Enforcement Group (NEG) will be responsible for completing this process for all air reporting facilities located within the four-mile radius sacrifice zone.*

## TRI Database Instructions

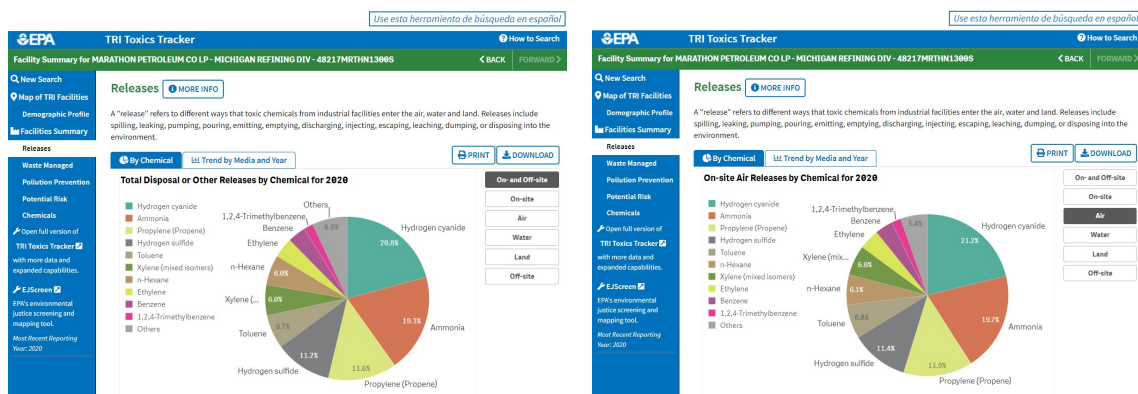
The TRI (Toxic Release Inventory) database tracks the release of 595 chemicals and 33 chemical categories that can pose human and environmental health threats released by TRI reporting facilities. In the Sacrifice Zone Policy, all residents, businesses and medical professionals will receive a notification with a map of the four-mile radius sacrifice zone listing the names and addresses of all facilities in the zone and instructions on how to look up a facility's emissions data using the TRI database.

Go to the Toxics Release Inventory (TRI) Program homepage: <https://www.epa.gov/toxics-release-inventory-tri-program>. Tutorial videos on how to use the database can be accessed at <https://www.youtube.com/watch?v=6bMxhXnS0GY>.

1. Scroll to the bottom of the homepage to the interactive section labeled, **TRI Toxics Tracker**. Click on the "Address," "Street, County, City or ZIP Code," "Metro Area," "Watershed," "Tribal Land," or "TRI Facility Name" tabs to search for a facility using that respective information. In our example, we used the "**TRI Facility Name**" tab to search for the Marathon Petroleum Co. LP. facility in Detroit, Michigan. Then click **View Search Results**.



- This will bring you to a **Map of TRI Facilities - Reporting Year** page that provides data about an individual facility. On the blue menu to the left, click **"Releases"** under the "Facilities Summary" tab. This will provide a visualized summary of the facility's chemical releases on-and-off site, into the air or water, and on land. To see total air emissions by the facility, click on the **"Air"** button.



4. To learn about the health effects of this facility's chemical releases, click on the **"Chemicals"** underneath the "Facilities Summary" tab. This will provide a full list of chemicals released from the facility and the possible health effects associated with each chemical. We are only concerned with monitoring air release data from the facility.
  - a. The table will show the number of releases per chemical by pounds.
  - b. The table will also show if the released chemical has a residual human health effect (listing cancer in the health effects first).
  - c. Definitions of each health effect can be found in the **"Definitions"** tab right to the "Chemicals" tab.

[Use esta herramienta de búsqueda en español](#)

EPA TRI Toxics Tracker			
Facility Summary for MARATHON PETROLEUM CO LP - MICHIGAN REFINING DIV - 48217MRTHN1308S			
New Search		How to Search	
Map of TRI Facilities		BACK FORWARD	
Demographic Profile			
Facilities Summary			
Releases			
Waste Managed			
Pollution Prevention			
Potential Risk			
Chemicals			
Open full version of TRI Toxics Tracker with more data and expanded capabilities.			
EJScreen EPA's environmental justice screening and mapping tool.			
Most Recent Reporting Year: 2020			
<b>Chemicals</b> <a href="#">MORE INFO</a>			
This section lists the potential health effects associated with the chemicals released by the facilities in your search area.			
<div> <div>Chemicals</div> <div>Definitions</div> </div>			
Chemical	2020 Releases (lb)	2020 RSEI Score	Health Effects
<b>Totals</b>	<b>134,591</b>	<b>87,773</b>	
Benzene	4,817	32,326	Cancer, Developmental, Hematological, Immunological, Reproductive
1,3-Butadiene	1,544	31,517	Cancer, Developmental, Reproductive
Hydrogen cyanide	28,005	8,864	Endocrine, Hematological, Neurological, Reproductive
Nickel compounds	89	5,216	Body Weight, Cancer, Hematological, Immunological, Respiratory
Hydrogen sulfide	15,100	5,052	Neurological, Respiratory
Naphthalene	1,366	4,121	Body Weight, Cancer, Neurological, Respiratory
Ethylbenzene	1,944	423	Cancer, Developmental, Endocrine, Hepatic, Neurological, Renal
Xylene (mixed isomers)	8,129	66	Body Weight, Neurological, Ocular, Other Systemic, Respiratory
Lead compounds	156	62	Cancer, Cardiovascular, Developmental, Hematological, Neurological, Renal, Reproductive
Dioxin and dioxin-like	0	29	Body Weight, Cancer, Cardiovascular,

[Use esta herramienta de búsqueda en español](#)

EPA TRI Toxics Tracker	
Facility Summary for MARATHON PETROLEUM CO LP - MICHIGAN REFINING DIV - 48217MRTHN1308S	
New Search	
Map of TRI Facilities	
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Most Recent Reporting Year: 2020	
<b>Chemicals</b> <a href="#">MORE INFO</a>	
This section lists the potential health effects associated with the chemicals released by the facilities in your search area.	
<div> <div>Chemicals</div> <div>Definitions</div> </div>	
The table below lists health terms and briefly describes related potential health effects.	
Health Effect	Definition
Body Weight	Changes in average body mass at critical time points (e.g., birth).
Cancer	The disease that causes uncontrolled growth of cells in the body.
Cardiovascular	Referring to the heart and blood vessels. Effects may include irregular heartbeat (arrhythmia), changes in blood pressure, heart failure, and/or disorders of the blood vessels.
Developmental	Referring to the formation of and change in the body's organs and tissues. Effects may occur at any time from conception through sexual maturity, and may include altered growth, structural abnormalities, and/or functional deficiencies.
Endocrine	Referring to hormones (chemicals that regulate how the body functions) and the glands that produce and release them. Effects may include changes in hormone production, secretion, transport, or signaling.
Hematological	Referring to the blood. Effects may include changes in blood composition, clotting and/or the production and function of blood cells, e.g., red blood cell ability to carry oxygen.
Hepatic	Referring to the liver. Effects may include elevated liver enzyme levels, liver inflammation (hepatitis), severe scarring (cirrhosis), reduced fat metabolism, and/or impaired removal of waste products from the blood.
Immunological	Referring to the immune system, which defends the body against foreign invasion. Effects may include changes in the functioning of white blood cells, lymph nodes, spleen, tonsils, and/or the thymus.
Neurological	Referring to the brain, spinal cord, or nerves. Effects may include impaired sensory and motor signaling.
Ocular	Referring to the eye. Effects may include eye irritation, itching, and impaired vision.
Other Systemic	Effects not otherwise categorized.

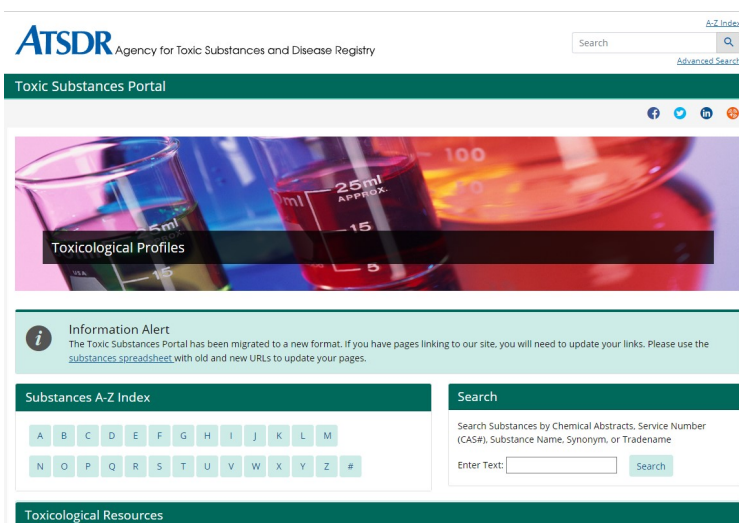


## ATSDR Toxic Portal Instructions

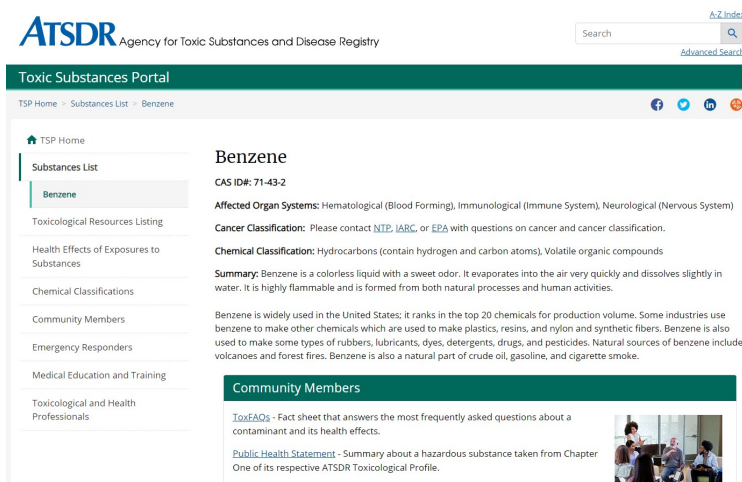
The Agency for Toxic Substances and Disease Registry (ATSDR) is a federal public health agency of the U.S. Department of Health and Human Services. The ATSDR database provides toxicology and medical health information for thousands of chemicals. In the Sacrifice Zone Policy, residents, businesses, and medical professionals will receive a notification with instructions and a link to the ATSDR Toxic Portal to look up further information about a chemical that is released in the zone.

The ATSDR Toxic Portal website can be reached here (<https://www.atsdr.cdc.gov/substances/index.asp>).

1. Below the homepage header, search a chemical alphabetically using the **Substances A-Z** menu or by typing in the chemical's name in the **Search** bar.



2. The Toxic Substances Portal webpage includes background information on the chemical including its physical and chemical properties, human health impacts, and its carcinogenic classification. For this example, we chose *benzene* from the Substances A-Z menu.






3. More information, including a chemical fact sheet (**ToxFAQs**) and a **Public Health Statement** providing a summary of the adverse health affects associated with the chemical can be found in the "**Community Members**" section.

### Community Members

[ToxFAQs](#) - Fact sheet that answers the most frequently asked questions about a contaminant and its health effects.

[Public Health Statement](#) - Summary about a hazardous substance taken from Chapter One of its respective ATSDR Toxicological Profile.



4. A more detailed **Toxicological Profile** on the chemical can be found in the "**Toxicological and Health Professionals**" section. The Toxicological Profile is a multiple hundreds page packet that includes comprehensive, peer-reviewed literature on a chemical's toxicology and medical properties.

### Toxicological and Health Professionals

[Toxicological Profile](#) - Succinctly characterizes the toxicologic and adverse health effects information for a hazardous substance.


[Addendum to the Profile](#) [975 KB] - Addendum to the Toxicological Profile for Benzene (June 2015)

[ToxGuide](#) [75 KB] - Quick reference guide providing information such as chemical and physical properties, sources of exposure, routes of exposure, minimal risk levels, children's health, and health effects for a substance.

[Priority List of Hazardous Substances](#) - Prioritization of substances based on a combination of their frequency, toxicity, and potential for human exposure at National Priorities List (NPL) sites.

[Minimal Risk Levels \(MRL\)](#) - The MRL is an estimate of the daily human exposure to a hazardous substance that is likely to be without appreciable risk of adverse, non-cancer health effects over a specified duration of exposure. The information in this MRL serves as a screening tool to help public health professionals decide where to look more closely to evaluate possible risk of adverse health effects from human exposure.

[Interaction Profiles](#) - Succinctly characterizes the toxicologic and adverse health effects information for mixtures of hazardous substances.



5. Scroll down on the Toxic Substances Portal and click on the PDF icon for the **Complete Profile**.

### Toxic Substances Portal

TSP Home - Benzene - Toxicological Profile

TSP Home

Benzene

ToxFAQs

Public Health Statement

**Toxicological Profile**

ToxGuide

Medical Management Guidelines (MMGL) for Acute Chemical Exposure

ToxProfile Index

#### Toxicological Profile for Benzene

CAS#: 71-43-2

#### Toxicological Profile Information

The ATSDR toxicological profile succinctly characterizes the toxicologic and adverse health effects information for the hazardous substance described here. Each peer-reviewed profile identifies and reviews the key literature that describes a hazardous substance's toxicologic properties. Other pertinent literature is also presented, but is described in less detail than the key studies. The complete list of topics covered (chapter titles) is shown at the left and in more detail further down this page.

The focus of the profile is on health and toxicologic information. Therefore, each profile begins with a [Public Health Statement](#) that summarizes in nontechnical language, a substance's relevant properties.

A useful two page information sheet, the [ToxFAQs](#), is also available.

#### Toxicological Profile Access

In order to access the ATSDR toxicological profile PDF files below, you must have Adobe Acrobat Reader. You may download that program free from [Adobe](#).

[Complete Profile](#) [PDF - 10.3 MB]

[Preface](#) [PDF - 294 KB]

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