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 the 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.
6. Click **Add to Map** to view the four-mile radius zone around the chosen facility.

7. 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):

8. 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.

9. 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 (89th percentile) or the 2017 Air Toxics Respiratory Hazard Index (87th 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 ID number. The primary facility name and facility registry ID number can be found using the EJScreen Step-By-Step Instructions.

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.
3. 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.”

4. 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.

5. Convert the total TRI HAPs in pounds into tons:

\[
Pounds \times 0.0005 = \text{tons}
\]

39,622.30 pounds \times 0.0005 = 19.811 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.
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.

2. 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.
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.


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 effects associated with the chemical can be found in the "Community Members" section.

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.

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