

# **Petroleum Refinery Fenceline Monitoring Stakeholder Engagement**

Webinar for State, Local and Tribal Governments

June 22, 2016

# Overview

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- ▶ Fenceline Monitoring Requirements
- ▶ Why Monitor for Benzene?
- ▶ What is the “Action Level”?
- ▶ What are the Benefits to the Public?
- ▶ Schedule
- ▶ Public Display of Data - Examples
- ▶ Stakeholder Input
- ▶ Additional Information

# Fenceline Monitoring Requirements for Petroleum Refineries

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- ▶ In 2015, in large part due to stakeholder input, EPA's air pollution rule for refineries includes:
  - ▶ Monitoring air concentrations of benzene along the perimeter (e.g. at the fenceline) of U.S. refineries
  - ▶ Reporting the monitored benzene concentrations to EPA
  - ▶ Conducting analysis and corrective action upon exceeding an established benzene concentration limit along the perimeter of these facilities

# Why Monitor around Petroleum Refinery Fencelines?



# What is Benzene?

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- ▶ Benzene is a colorless hazardous air pollutant with a sweet odor that is widely used in the U.S.
- ▶ Used in the production of a wide variety of products including rubber, plastic, nylon and synthetic fibers
- ▶ Component of crude oil, gasoline, and cigarette smoke
- ▶ Highly flammable
- ▶ Evaporates into air quickly
- ▶ Human carcinogen via all routes of exposure

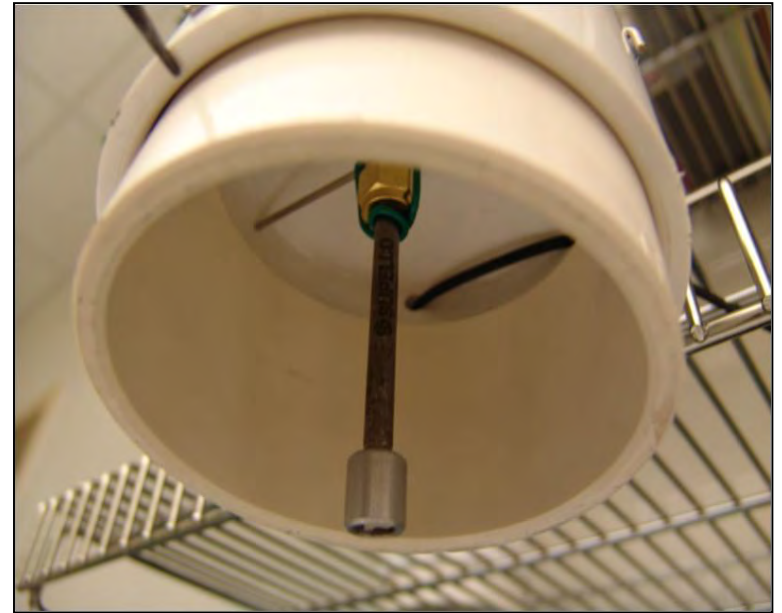




# Why Monitor for Benzene?

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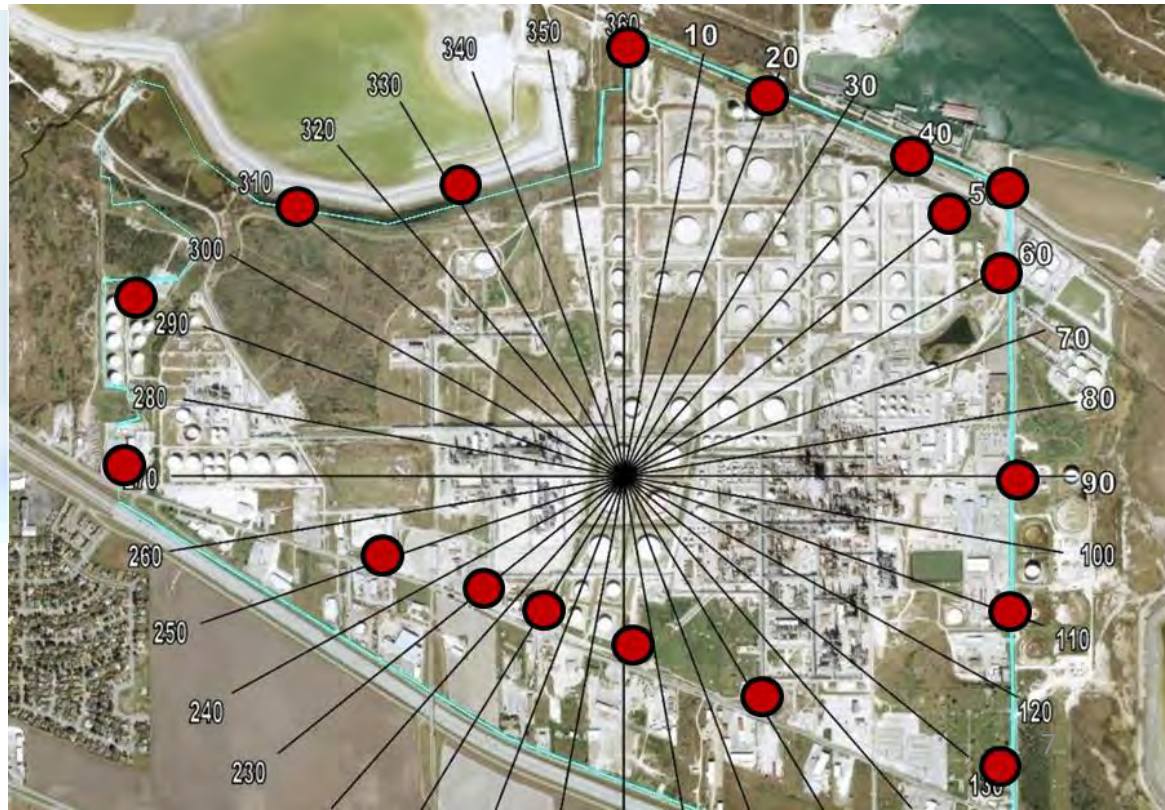
- ▶ Benzene is found in nearly all refinery processes and waste streams
- ▶ Majority of refinery benzene emissions are estimated to be from leaky pipes, valves and equipment and waste water sources
- ▶ Exposure to benzene can lead to a variety of health effects, including increased risk of cancer
- ▶ Exposure to benzene was one of the primary contributors to health risks associated with refinery emissions



Benzene monitor

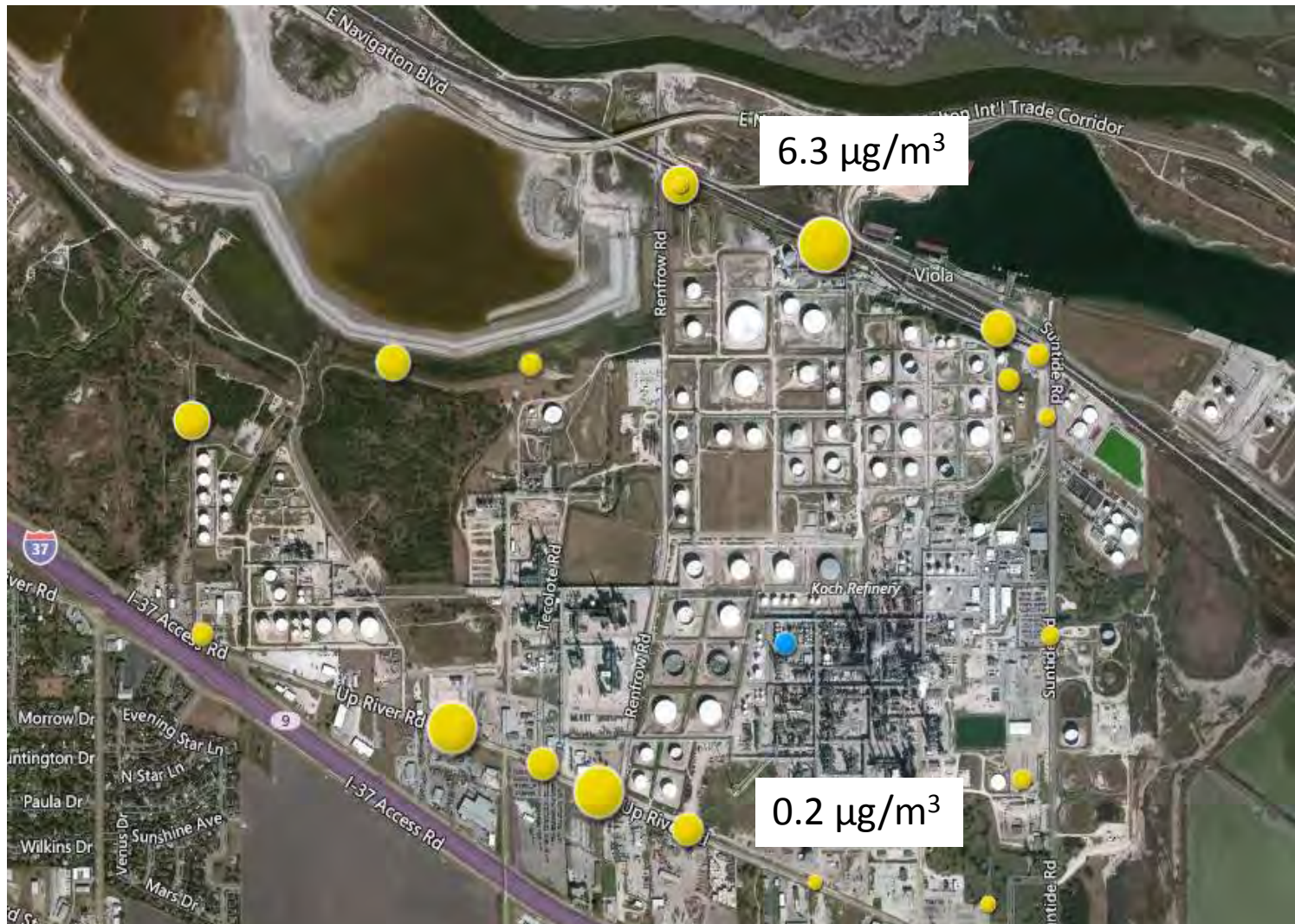
# Why Use Passive Diffusive Tube Monitoring?

- ▶ Allows for continual monitoring of pollutant concentrations around the entire plant
- ▶ Has detection limits low enough to be able to detect the concentrations of the pollutants in the ambient air near a refinery during typical operating conditions





# What is the “Action Level” for Fenceline Monitoring?



$\Delta C$  for a 2 week period = high - low =  $6.3 \mu\text{g}/\text{m}^3 - 0.2 \mu\text{g}/\text{m}^3 = 6.1 \mu\text{g}/\text{m}^3$   
Action Level = Annual Average  $\Delta C < 9 \mu\text{g}/\text{m}^3$



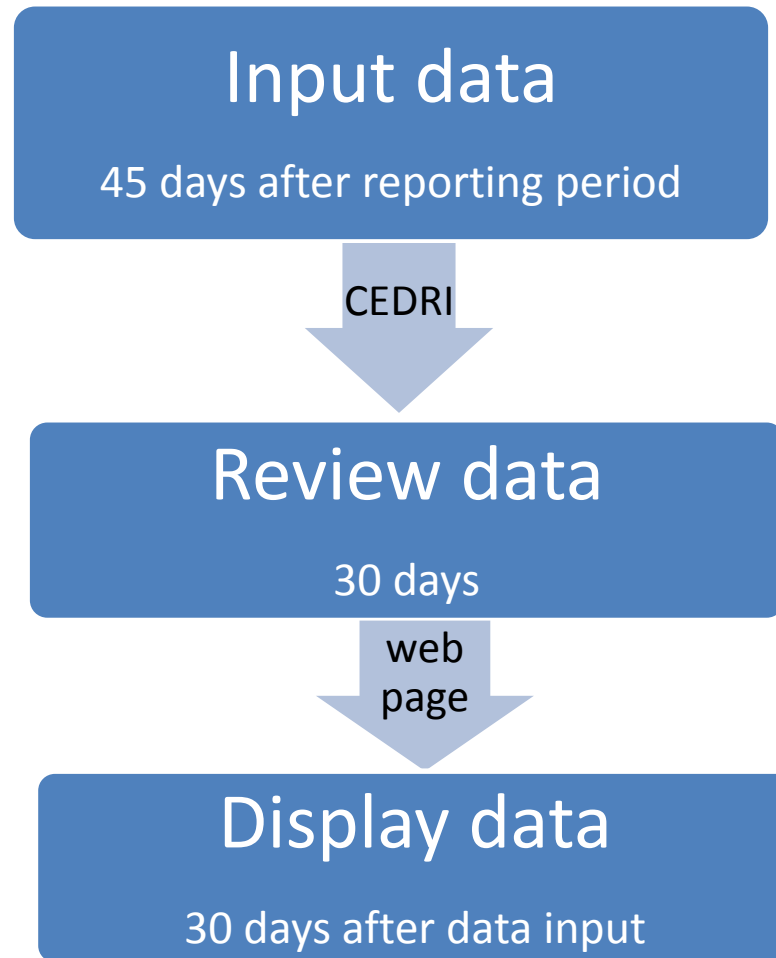
# What are the Benefits of Monitoring to the Public?

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- ▶ Encouraging early detection and correction of problems before they rise to the corrective action level
- ▶ Identifying toxic air emissions from refinery emissions sources such as equipment leaks and wastewater systems
  - ▶ Taking advantage of low concentration level sampling technology for hazardous air pollutants emitted by refineries
- ▶ Providing information on toxic air emissions to federal, state and local officials and the public
- ▶ Providing requirements for refineries to take action to correct toxic air emissions from refinery emission leaks
  - ▶ Protecting public health in communities surrounding refineries

# Process

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# Schedule

Activity	Dates
Refineries install fenceline monitoring systems	Present – January 29, 2018
Refineries begin collecting data <ul style="list-style-type: none"><li data-bbox="195 505 996 608">• Collect 12 months of data to calculate annual average</li></ul>	January 30, 2018
Refineries report data to EPA’s emissions data system <ul style="list-style-type: none"><li data-bbox="195 753 981 853">• Refineries continue to report data on quarterly basis</li><li data-bbox="195 868 1031 968">• Refineries compare annual average to 9 micrograms per cubic meter</li></ul>	Spring 2019
EPA public release of benzene data on web page 30 days after quarterly reporting period ends <ul style="list-style-type: none"><li data-bbox="195 1139 1051 1239">• Data will be refreshed quarterly on EPA’s public web page</li></ul>	Summer 2019



# CEDRI

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- ▶ EPA's Compliance and Emissions Data Reporting Interface

# MyCEDRI: Reviewer

The screenshot shows the MyCEDRI web application interface. At the top, there is a navigation bar with the EPA logo and the text "United States Environmental Protection Agency". Below this, there are links for "MyCEDRI", "Submissions", "Search", "Notifications", and "CEDRI Help". On the right side, it says "Logged in as" followed by "Return to CDX" and "Logout". A "CEDRI Helpdesk Chat" button is also present.

The main content area is titled "What would you like to do?" and contains four blue buttons:

- View Submissions**: View all submissions within your State and if desired, mark as reviewed.
- Manage Notifications**: Set your notification preferences.
- Manage User Profile**: Manage your CDX User Profile.
- View Report Templates**: View all reporting templates.

Below these buttons, there are two main sections:

- Submissions Timeline for WebFIRE Release**: A donut chart showing the distribution of submissions by review time. The legend indicates:
  - > 30 Days (Green): 10
  - 10-29 Days (Orange): 2
  - < 9 Days (Cyan): 3
- Notifications**: A notification box stating "Reports Pending Review Before Release to WebFIRE 3" and "You have reports pending review."

At the bottom left, there is a "User Profile" section with an "Edit" link. The profile fields are: Name, CDX Username, Email Address, Phone, Organizations, Program Service, Role, and State.

The footer contains the following information:

- EPA Home | Privacy and Security Notice | Accessibility
- CDX Help Desk: 888-890-1995 | (970) 494-3500 for International callers
- About CDX | Frequently Asked Questions | Terms and Conditions | Contact Us
- The EPA logo.

# MyCEDRI: Reviewer

The screenshot displays the MyCEDRI Reviewer interface. At the top, there is a navigation bar with the EPA logo and the text "United States Environmental Protection Agency". Below this, there are navigation links for "MyCEDRI", "Submissions", "Search", "Notifications", and "CEDRI Help". On the right side, it indicates the user is "Logged in as" and provides links for "Return to CDX" and "Logout". A "CEDRI Helpdesk Chat" button is also present.

The main section is titled "Submissions". Below the title, there is a paragraph of instructions: "Below are the recent CEDRI submissions that have been submitted for facilities in the state(s) for which you have review authority, listed by individual report. You may search for specific submissions by selecting the 'Search' tab. Click the 'View' link to see the report details and download associated files. Please use means external to the CEDRI application if you have any questions, comments, or suggested revisions for the submitter regarding the report. If desired, you may designate a submission as reviewed by utilizing the Review Status dropdown. The CEDRI User Guide for Reviewers can be found here: CEDRI User Guide."

Below the instructions, it states "4 Submissions Found" and "Page(s) 1". There is a link to "Export Search Results: CSV".

The main content is a table with the following columns: Facility, County, State, Report, Part, Subpart, Certification Date, Report Status, View, and Review Status. The table contains four rows of submission data.

Facility	County	State	Report	Part	Subpart	Certification Date	Report Status	View	Review Status
			<a href="#">63.655(h)(8) Fenceline Monitoring Report</a>	Part 63	Subpart CC	2016-06-06 2:34	Submitted	<a href="#">View</a>	Not Reviewed
			<a href="#">60.45c(c)(14) ERT Performance Report</a>	Part 60	Subpart Dc	2016-05-05 12:59	Submitted	<a href="#">View</a>	Not Reviewed
			<a href="#">63.6650(h)(3) Annual Report</a>	Part 63	Subpart ZZZZ	2016-05-05 12:39	Resubmitted	<a href="#">View</a>	Not Reviewed
			<a href="#">63.6650(h)(3) Annual Report</a>	Part 63	Subpart ZZZZ	2016-05-05 12:39	Submitted	<a href="#">View</a>	Not Reviewed

At the bottom of the page, there is a footer with contact information: "CDX Help Desk: 888-890-1995 | (970) 494-5500 for International callers". There are also links for "EPA Home", "Privacy and Security Notice", "Accessibility", "About CDX", "Frequently Asked Questions", "Terms and Conditions", and "Contact Us". The EPA logo is also present in the bottom right corner.



# Draft Email Notification for Reviewer

**From:** cdx@epa.gov [mailto:cdx@epa.gov]  
**Sent:** Wednesday, June 08, 2016 12:43 PM  
**To:**  
**Subject:** CDX CEDRI Dataflow – State Reviewer Notification - Submission Available to View

This e-mail is to inform you that the following submission package was successfully signed and has reached CEDRI. To view each report in this submission package, click the link(s) under "Report Type", and then log into the CDX.

## Submission Details:

**Submission Date/Time:**

**Certifier Name:**

**Certifier Organization:**

**Certifier Facility:**

**Facility Address:**

**EPA Facility Id:**

**Submission Id:**

Report Name	Report Type	Regulation Part/Subpart	Public Release Date
<a href="#">63.655(h)(8) Fenceline Monitoring Report</a>	<a href="#">Fenceline Monitoring Report</a>	Part 63 – Subpart CC: National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries	07/06/2016

This message is being sent to you as a notification for the submission of this package for a facility in your state. If you believe this facility is not in your state or that this email is not intended for you, please contact the CDX Helpdesk at 1-888-890-1995. If you would like to only receive certain reports based on report type, regulation Part/Subpart, or county, please use the Notifications section of the CEDRI application.

# CEDRI – Selecting a Report

**EPA** United States Environmental Protection Agency

MyCEDRI | [My Reports](#) | [CEDRI History](#) | [User Management](#) | [CEDRI Help](#)

Logged in as [Return to CDX](#) | [Logout](#)

**Manage Regulations/Create Report(s)** [CEDRI Helpdesk Chat](#)

The reports that you recently submitted within CEDRI are listed below. You may add more regulations and reports by selecting options from the 40 CFR Part and Subparts dropdown. To remove an existing regulation from your profile, select the corresponding regulation from the list and click the 'Remove Selected Regulation(s)' button below.

To create a new report for a regulation, click the corresponding regulation from the list, select facility(ies), and select the 'Proceed to My Reports' button. If selecting multiple facilities, a separate report will be generated for each facility selected.

**Filter Available Reports by Report Type (Optional)**

- Annual Report
- Notification Report
- Fenceline Monitoring Report
- Performance Test Report
- Notice of Compliance Status
- Relative Accuracy Test Audit (RATA) Data
- Include reports with a bulk upload option

**Select From Recently Submitted Reports or Select New Regulation** [Edit Facility\(s\)](#)

<input type="checkbox"/> 40 CFR Part	Subpart	Available Report(s)	Select Facility(s)
<input checked="" type="checkbox"/> Part 63 <input type="text" value="Select 40 CFR Part"/>	Subpart CC-National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries <input type="text" value="Select a Sub-part"/>	<input checked="" type="checkbox"/> 63.655(h)(8) Fenceline Monitoring Report <input type="checkbox"/> 63.655(h)(9)(i) Results of the Performance Test <input type="checkbox"/> 63.655(h)(9)(ii) Results of the Performance Evaluation	<input checked="" type="checkbox"/>

[X Remove Selected Regulation\(s\)](#) [Proceed to My Reports](#)

EPA Home | [Privacy and Security Notice](#) | [Accessibility](#) | [About CDX](#) | [Frequently Asked Questions](#) | [Terms and Conditions](#) | [Contact Us](#)

# CEDRI – Creating a Report

The screenshot displays the CEDRI web application interface. At the top, there is a navigation bar with the EPA logo and the text "United States Environmental Protection Agency". Below this, a secondary navigation bar contains links for "MyCEDRI", "My Reports", "CEDRI History", "User Management", and "CEDRI Help". On the right side of this bar, it indicates the user is "Logged in as" and provides links for "Return to CDX" and "Logout". A "CEDRI Helpdesk Chat" button is also visible.

## My Reports

You are currently registered under the "Certifier" role and may prepare and certify reports electronically for your associated facilities. Reports that have been selected, but not yet started are listed in the 'New Reports' section. Reports that have been started, but are not yet complete can be found in the 'In Progress Reports' section. Reports that are complete, but awaiting certification can be found in the 'Ready for Certification' section.

If you would like to create a new report, click the "Create New Report" button. Also the User Guide for CEDRI is located here [CEDRI User Guide](#) for your benefit.

[+ Create New Report](#)

### In Progress Reports

<input type="checkbox"/> Report Name	Created Date	Facility Name	
<input type="checkbox"/> <a href="#">63.655 Fenceline Monitoring Report</a>	2016-06-03 11:14:08.784		<a href="#">Continue</a>
<input type="checkbox"/> <a href="#">63.11225(a)(4)(vi) Notification of Compliance Status</a>	2016-04-03 11:14:08.784		<a href="#">Continue</a>

[Remove Selected](#)

### Ready for Certification

<input type="checkbox"/> Report Name	Created Date	Facility Name	
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# CEDRI – Creating/Editing a Report

The screenshot shows the EPA CEDRI web application interface. At the top, the EPA logo and "United States Environmental Protection Agency" are displayed. Navigation links include "MyCEDRI", "My Reports", "CEDRI History", "User Management", and "CEDRI Help". A "Logged in as" section contains "Return to CDX" and "Logout" links. A "CEDRI Helpdesk Chat" button is also present.

## Create/Edit Report

A progress indicator shows three steps: "Create/Edit Report" (highlighted with a yellow circle), "Notify Certifiers", and "Certify & Submit".

**Part 63 - Subpart CC-National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries**

**Create/Edit Form**  
Warning: A new application window will open.

**Optional Reporting Utilities**  
[Access Templates & Schemas](#)


Report	63.655(h)(8) Fenceline Monitoring Report
Report Status	In Progress
Report Created on	Fri Jun 03 09:34:27 EDT 2016

Facility Details	
Facility Name	
EPA Registry ID	

[View More Details](#) | [Edit Facility Details](#)


[Return to My Reports](#) | [Notify Certifiers](#)

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# CEDRI – General Information Page

## Fenceline Monitoring: Welcome Page

 United States Environmental Protection Agency

CEDRI Instructions CEDRI Helpdesk Chat

### General Information

#### Reporting Requirements

Fill out this form for fenceline monitoring systems subject to §63.658, within 45 calendar days after the end of each reporting period. Each owner or operator shall submit the following information to the EPA's Compliance and Emissions Data Reporting Interface (CEDRI). The owner or operator need not transmit this data prior to obtaining the initial 12 months of data. (§63.655(h)(8))

For the first reporting period and whenever a passive sampler is added or moved, the owner or operator shall report the coordinates of all of the passive sampler locations. The owner or operator shall determine the coordinates using an instrument with an accuracy of at least 3 meters. Coordinates shall be in decimal degrees with at least five decimal places. (§63.655(h)(8)(i))

On the next page, please provide the passive sampler IDs, coordinates, sampler type and their corresponding sampling period for each biweekly sampling period for this reporting period. Also, please provide the individual sample results for each passive monitor for each biweekly sampling period. Ensure your report/data includes all of the required data elements found in the listed citations below.

- Provide the biweekly annual average concentration difference ( $\Delta c$ ) values for benzene for the reporting period. (§63.655(h)(8)(ii))
- Provide notation for each biweekly sampling period value that indicates:
  - whether background correction was used,
  - all measurements in the sampling period were below detection, or
  - whether an outlier was removed from the sampling period data set. (§63.655(h)(8)(iii))\*

#### Template Instructions

You may upload a completed Excel template to submit data for this reporting period. Please click the following link to download the Excel template: <https://www3.epa.gov/ttn/chief/cedri/index.html>. Once you complete your data entry in the Excel template, you may upload the template on the next page by selecting the 'Upload' button and the Excel file will populate the table.

#### Report Navigation


Use the 'Next Page' and 'Previous Page' buttons to navigate between pages. At any time, you may save your progress and return to the submission package by selecting the 'Save & Close' button.

When the form is complete, please select the 'Mark as Complete' button.

Please proceed to the next page by selecting the 'Next Page' button.

Next Page Save Save & Close Mark as Complete

# CEDRI – Reporting Period and Sampling Data

 United States Environmental Protection Agency

CEDRI Instructions CEDRI Helpdesk Chat

### Reporting Period

What is the year and quarter that you are reporting for?

Please select the reporting year:

Please select the reporting period:

Start Date of reporting period:

End Date of reporting period:

### Sampling Data

You may download an Excel template to submit data for this reporting period. Once you complete your data entry in the Excel template, please click the Upload button below to upload the Excel file. The Excel file will populate the table below. After upload, you may edit the populated data within the table below if desired.

[Download Template](#)

If not utilizing a template, please complete the table below for the reporting period.

				<< < Biweek 2 > >>						
Passive Sampler Id	Latitude	Longitude	Type	Start Date of Sampling Period	End Date of Sampling Period	Sample Concentration of Benzene (µg/m <sup>3</sup> )	Is Concentration BDL?	Outlier	Background Correction Used?	
<input checked="" type="checkbox"/> PS-1	42.879489	-78.876205	Primary	01/01/2016	03/31/2016	3.159	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> PS-2	43.453459	-78.255363	Primary	01/01/2016	03/31/2016	3.432	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> PS-3	43.435563	-78.235267	Primary	01/01/2016	03/31/2016	3.456	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Provide Annual Average Δc  
*Provide the annual average Δc for all biweeks*

Sampling Period Δc for Biweek 2  
*This value is auto-calculated for each biweek within the reporting period.*

### Additional Information

Please enter any additional information.


Attach a ZIP file if submitting multiple files or a PDF file if submitting a single file for any other additional information needed to be submitted. If you elect to use a ZIP file, the ZIP file may contain individual files in any file format (e.g. xlsx, docx, PDF).

Click upload to attach any additional information.

You have reached the end of the report. To continue, please click the 'Mark as Complete' button.



# CEDRI – Defining a Reporting Period

 **EPA** United States Environmental Protection Agency

CEDRI Instructions CEDRI Helpdesk Chat

### Reporting Period

What is the year and quarter that you are reporting for?

Please select the reporting year:

Please select the reporting period:

Start Date of reporting period:

End Date of reporting period:

### Sampling Data

You may download an Excel template to submit data for this reporting period. Once you complete your data entry in the Excel template, please click the Upload button below to upload the Excel file. The Excel file will populate the table below. After upload, you may edit the populated data within the table below if desired.

[Download Template](#)

If not utilizing a template, please complete the table below for the reporting period.

<< < Biweek 2 > >>										
	Passive Sampler Id	Latitude	Longitude	Type	Start Date of Sampling Period	End Date of Sampling Period	Sample Concentration of Benzene (µg/m3)	Is Concentration BDL?	Outlier	Background Correction Used?
✖	PS-1	42.879489	-78.876205	Primary	01/01/2016	03/31/2016	3.59	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

# CEDRI – Providing Sampling Data

## Sampling Data

You may download an Excel template to submit data for this reporting period. Once you complete your data entry in the Excel template, please click the Upload button below to upload the Excel file. The Excel file will populate the table below. After upload, you may edit the populated data within the table below if desired.

[Download Template](#)

Upload

If not utilizing a template, please complete the table below for the reporting period.

Export

<<< Biweek 2 >>>

	Passive Sampler Id	Latitude	Longitude	Type	Start Date of Sampling Period	End Date of Sampling Period	Sample Concentration of Benzene ( $\mu\text{g}/\text{m}^3$ )	Is Concentration BDL?	Outlier	Background Correction Used?
✘	PS-1	42.879489	-78.876205	Primary	01/01/2016	03/31/2016	3.159	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
✘	PS-2	43.453459	-78.255363	Primary	01/01/2016	03/31/2016	3.432	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
✘	PS-3	43.435563	-78.235267	Primary	01/01/2016	03/31/2016	3.456	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Add Row

Provide Annual Average  $\Delta c$

Provide the annual average  $\Delta c$  for all biweeks.

Sampling Period  $\Delta c$  for Biweek 2

This value is auto-calculated for each biweek within the reporting period.

3.233

# CEDRI – Additional Information

	<input type="text" value="PS-2"/>	<input type="text" value="43.453459"/>	<input type="text" value="-78.255363"/>	<input type="text" value="Primary"/>	<input type="text" value="01/01/2016"/>	<input type="text" value="03/31/2016"/>	<input type="text" value="3.432"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="text" value="PS-3"/>	<input type="text" value="43.435563"/>	<input type="text" value="-78.235267"/>	<input type="text" value="Primary"/>	<input type="text" value="01/01/2016"/>	<input type="text" value="03/31/2016"/>	<input type="text" value="3.456"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

[Add Row](#)

## Provide Annual Average $\Delta c$

*Provide the annual average  $\Delta c$  for all biweeks.*

## Sampling Period $\Delta c$ for Biweek 2

*This value is auto-calculated for each biweek within the reporting period.*

## Additional Information

Please enter any additional information.

Attach a ZIP file if submitting multiple files or a PDF file if submitting a single file for any other additional information needed to be submitted. If you elect to use a ZIP file, the ZIP file may contain individual files in any file format (e.g. xlsx, .docx, PDF).

Click upload to attach any additional information.

You have reached the end of the report. To continue, please click the 'Mark as Complete' button.

# CEDRI – Template

	A	I	J	K	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
	Passive Sampler ID*	Latitude of Passive Sampler*	Longitude of Passive Sampler*	Passive Sampler Type	Biweek Sampling Period 1: Start Date of Sampling Period	Biweek Sampling Period 1: End Date of Sampling Period	Biweek Sampling Period 1: Sample Concentration of Benzene (µg/m3)	Biweek Sampling Period 1: <Value Provided in Column <P> BDL?	Biweek Sampling Period 1: Outlier Removed?	Biweek Sampling Period 1: Background Correction Used?	Biweek Sampling Period 2: Start Date of Sampling Period	Biweek Sampling Period 2: End Date of Sampling Period	Biweek Sampling Period 2: Sample Concentration of Benzene (µg/m3)	Biweek Sampling Period 2: <Value Provided in Column <V> BDL?	Biweek Sampling Period 2: Outlier Removed?	Biweek Sampling Period 2: Background Correction Used?	Biweek Sampling Period 3: Start Date of Sampling Period	Biweek Sampling Period 3: End Date of Sampling Period
1																		
2	PS-1	42.87949	-78.87621	Primary	1/1/2016	3/31/2016	3.153	Yes	No	Yes	1/1/2016	3/31/2016	3.159	Yes	No	Yes	1/1/2016	3/31/2016
3	PS-2	43.45346	-78.25536	Primary	1/1/2016	3/31/2016	3.062	Yes	No	Yes	1/1/2016	3/31/2016	3.432	Yes	Yes	Yes	1/1/2016	3/31/2016
4	PS-3	43.43556	--78.23527	Primary	1/1/2016	3/31/2016	3.213	Yes	No	Yes	1/1/2016	3/31/2016	3.456	Yes	No	Yes	1/1/2016	3/31/2016
5																		
6																		
7																		
8																		
9																		
10																		



# Public Display of Data – Examples

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- ▶ Public display of data
  - ▶ EPA is designing a web page to display fenceline refinery data
  - ▶ Web page will be managed by EPA
  - ▶ Design will incorporate stakeholder ideas
  - ▶ Available to public in the Summer 2019

# Web Page Example

The screenshot shows the EPA website header with the logo and navigation links for Spanish, Chinese (Simplified and Traditional), Vietnamese, and Korean. Below the header are tabs for 'Learn the Issues', 'Science & Technology', 'Laws & Regulations', and 'About EPA'. A search bar is located on the right. The main content area features the title 'Fenceline Monitoring for Petroleum Refineries' and an introductory paragraph. Below this are four sections: 'Refinery Information' with an image of a refinery and a list of questions; 'Health Information' with an image of a stethoscope and a list of questions; 'Access Monitoring Data' with an image of a tablet displaying charts; and 'In Your Community' with an image of a playground and a list of resources.

**EPA** US Environmental Protection Agency

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## Fenceline Monitoring for Petroleum Refineries


On December 1, 2015, the Environmental Protection Agency (EPA) issued a final rule that will further control toxic air emissions from petroleum refineries and provide important information about refinery emissions to the public and neighboring communities. This site offers more about that regulatory action, the health effects of benzene, and offers several options for viewing data from refinery fenceline monitors.

### Refinery Information




- What are refineries?
- How does EPA regulate refineries?

### Health Information




- What are health effects of benzene?

### Access Monitoring Data

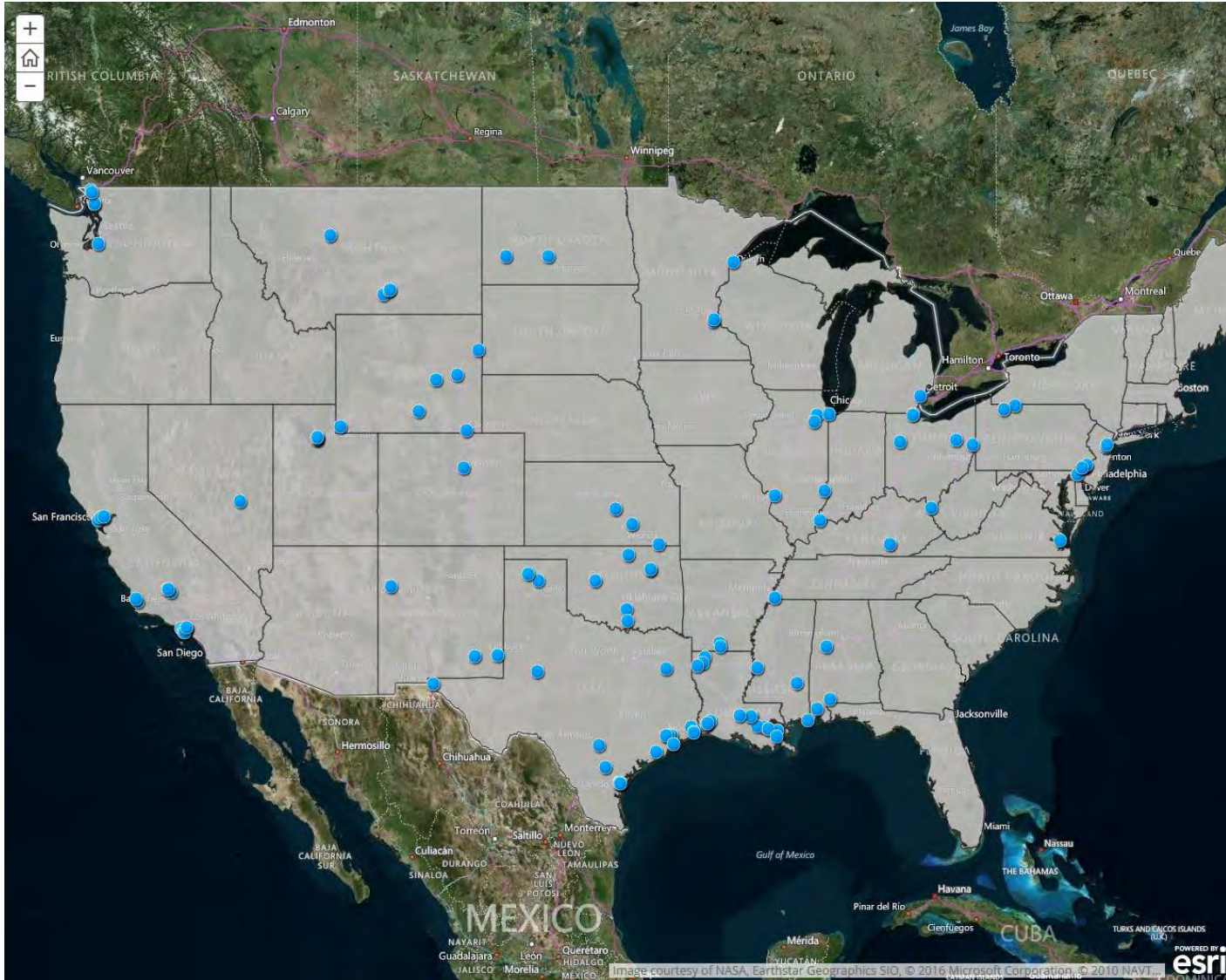


### In Your Community



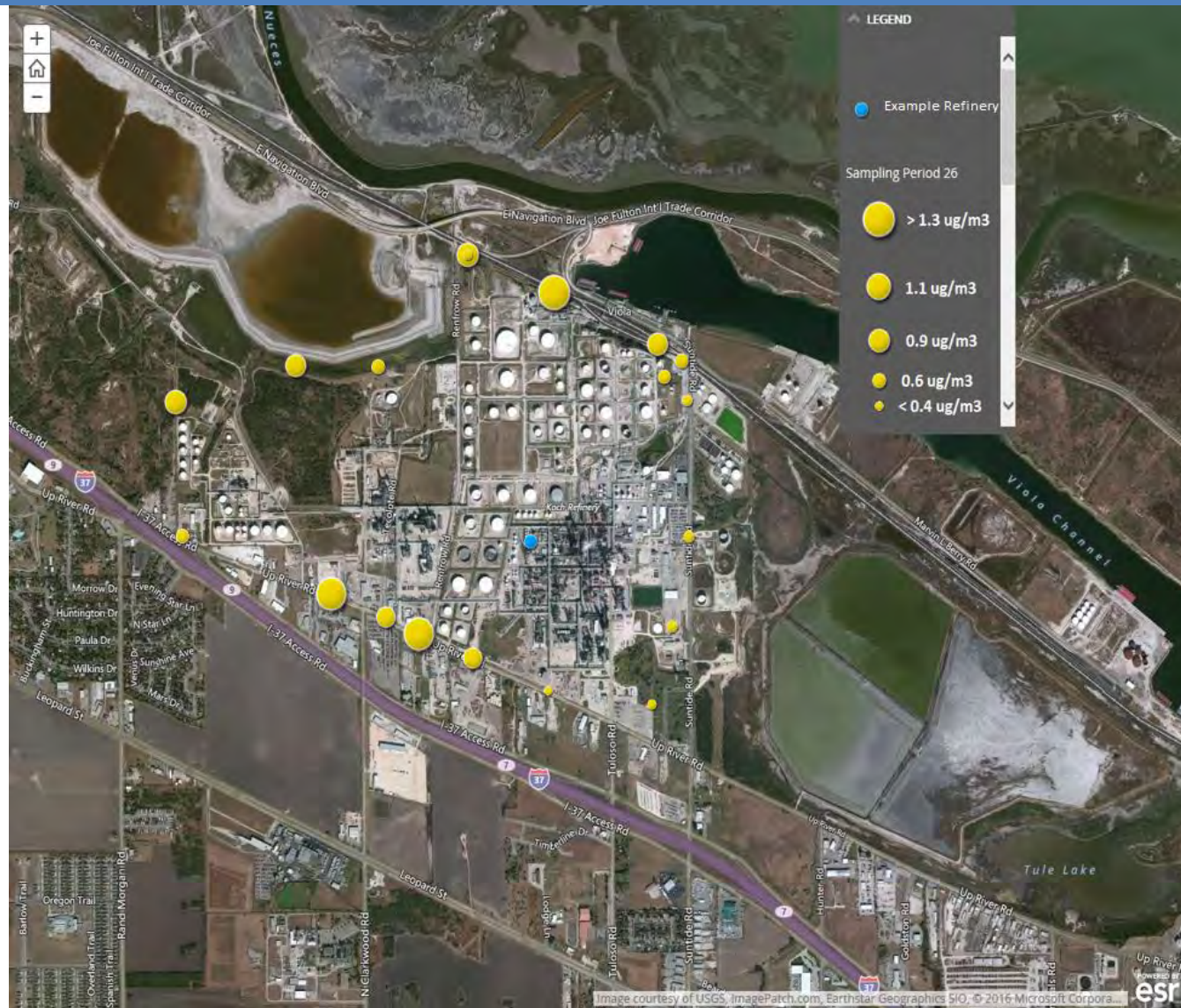
- Envirofacts

# Story Map – Home Page





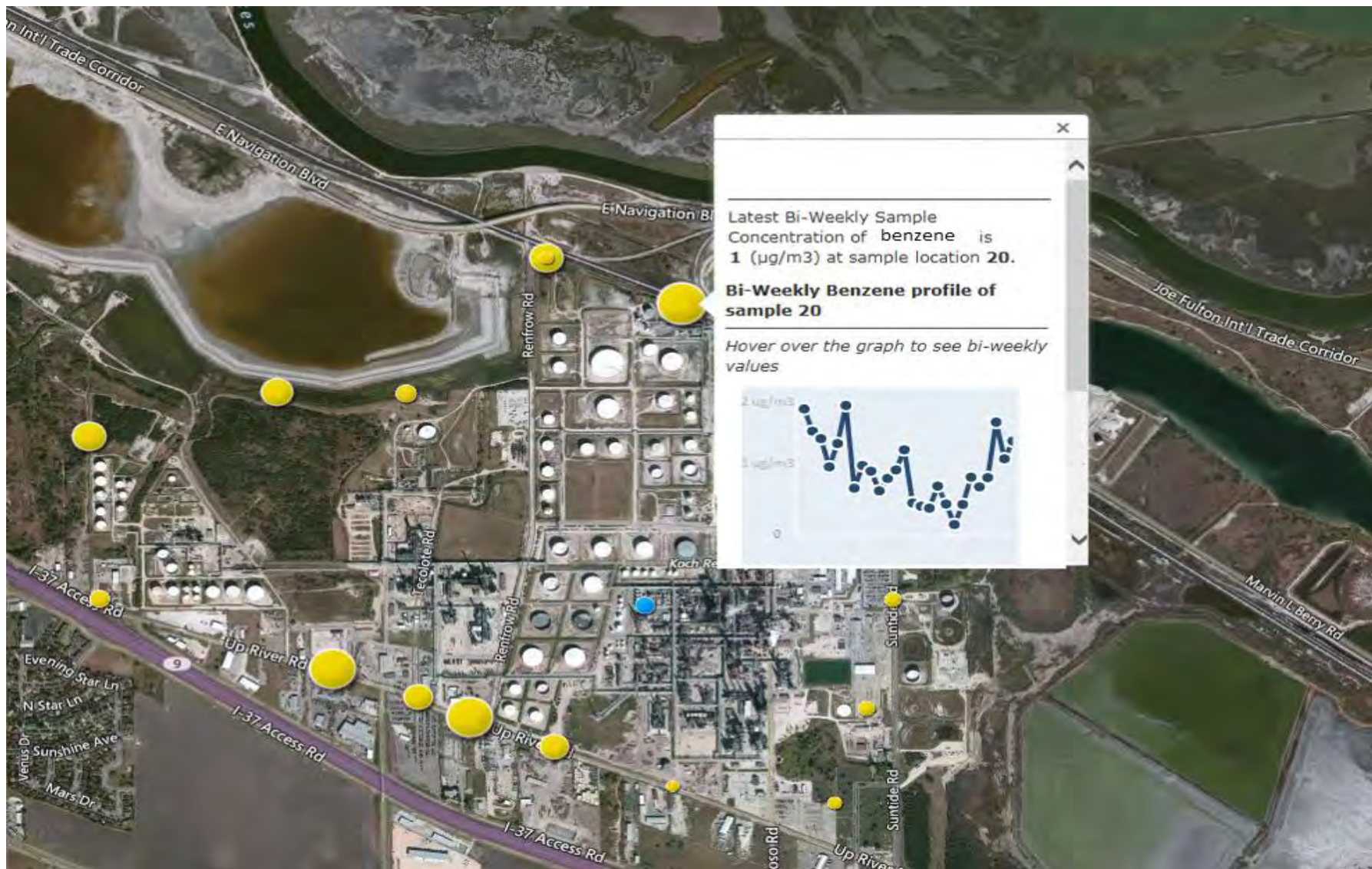
# Facility: Fenceline Monitors



\*\*data are for demonstration purposes only\*\*



# Facility: Individual Fenceline Monitor Pop-up



\*\*data are for demonstration purposes only\*\*



# Facility: Facility Wide Pop-up



\*\*data are for demonstration purposes only\*\*

# Stakeholder Input

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- ▶ How to provide your input

- ▶ Email: [fencelineteam@epa.gov](mailto:fencelineteam@epa.gov)

- Please send input by July 31, 2016

- ▶ What information needs to be included on the web page to understand the data?

- ▶ Within context of the rule, what information and data on benzene do you want to see on the web page?

- ▶ Do you have ideas for other ways to share the information besides a web page?

- ▶ What other information would be helpful for you?

- ▶ Other EPA information about air toxics? Links to EPA environmental justice tools?

- ▶ Is there other training or support that might be helpful?

# Additional Information

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For updates and additional information:  
<https://www3.epa.gov/ttn/atw/petref.html>

# Appendix

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# Clean Air Act

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- ▶ New Source Performance Standards (NSPS)
  - ▶ CAA Section 111(b) requires to EPA to set and periodically review, emission standards for new sources of criteria air pollutants (CAP), volatile organic compounds (VOC), and other pollutants
- ▶ Air Toxics Rules: Maximum Achievable Control Technology (MACT) and Residual Risk and Technology Reviews
  - ▶ CAA Section 112(d) requires EPA to set emission standards for hazardous air pollutants (HAP) based on performance of the maximum achievable control technology (MACT)
  - ▶ EPA is required to conduct two reviews and update the existing standards, if necessary
    - Residual Risk Assessment: To determine whether additional emission reductions are warranted to protect public health or the environment. This is a one-time review.
    - Technology Reviews: To determine if better emission control approaches, practices, or processes are now available. Technology reviews are required every eight years.

# Rulemakings

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## ▶ NSPS

- ▶ 1974 NSPS – covers fuel gas combustion devices, FCCU and sulfur plants
- ▶ 2008 and 2012 NSPS – covers same above and delayed cokers, flares and process heaters specifically

## ▶ MACT

- ▶ 1995 MACT (known as MACT 1) covers non-combustion or evaporative sources, such as equipment leaks, tanks, wastewater, miscellaneous process vents; amended to cover heat exchange systems, including cooling towers
- ▶ 2002 MACT (known as MACT 2) covers combustion sources: catalytic cracking units, catalytic reforming units and sulfur recovery units

## ▶ Risk and Technology Review (RTR)

- ▶ 2007 – proposed risk and technology review amendments for non-combustion sources
- ▶ 2009 – withdrew amendments
- ▶ 2013 – promulgated standards for heat exchanger systems
- ▶ 2014 – proposed RTR and amendments (79 FR 36880; June 30, 2014)
- ▶ 2015 – finalized amendments

# Fenceline Monitoring – Monitor Siting

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- ▶ 12-24 monitors (based on size of facility) are required around the perimeter of each refinery
  - ▶ Additional monitors required if sources are near fenceline
- ▶ Monitors will be placed following requirements in EPA Method 325A
- ▶ Geographic coordinates for each monitoring location will be reported

# Fenceline Monitoring – Data Collection

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- ▶ At least one sample collected from each individual monitoring location every two weeks
- ▶ Samples analyzed for benzene following requirements in EPA Method 325B
- ▶ The highest and lowest benzene concentration is identified for each bi-week sampling period
- ▶ The “delta C ( $\Delta C$ )” for that monitoring period is calculated as the difference of these two concentrations
- ▶ 26 consecutive bi-week  $\Delta C$  values are averaged to calculate an annual average  $\Delta C$  value
  - ▶ Collect benzene data for one year to develop first annual average  $\Delta C$  value



# Fenceline Monitoring – Data Reporting

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- ▶ Upon completion of the first year of monitoring, benzene data are reported to EPA through EPA's data management system
  - ▶ Includes actual measurements for each 2 week period for each monitoring station
- ▶ Refinery owners must maintain the annual average  $\Delta C$  value at or below 9 micrograms per cubic meter,  $\mu\text{g}/\text{m}^3$  (2.8 parts per billion by volume, ppbv)