

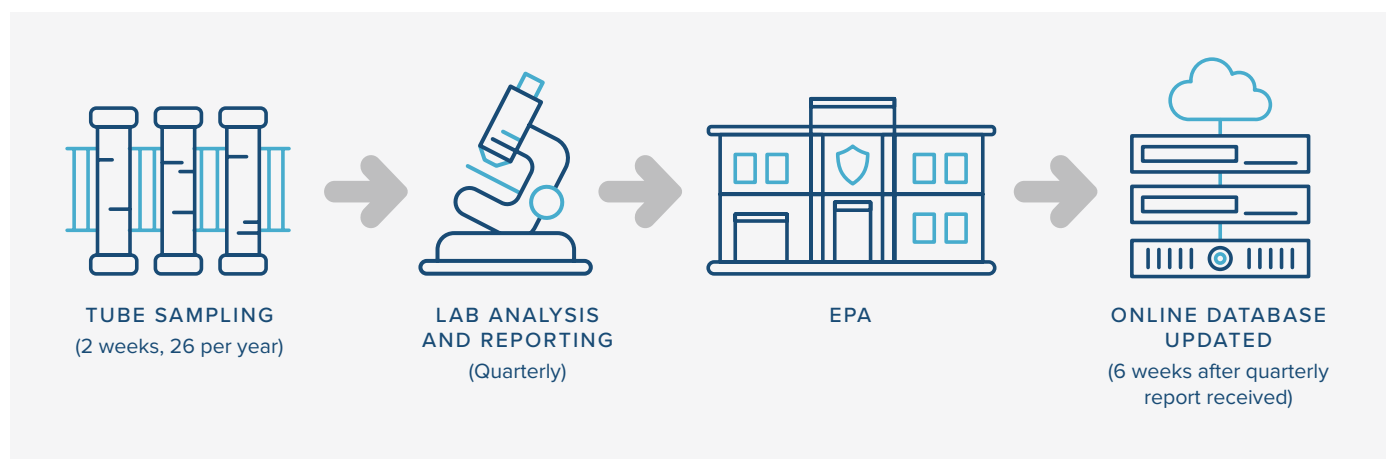
## What is Fenceline Monitoring?

Designed to help refineries and surrounding communities understand how the emissions controls in place at a refinery are working

Under United States Environmental Protection Agency (USEPA) Petroleum Refinery Sector Rule, refineries across the United States, including those in Washington State, are required to monitor concentrations of benzene at their property boundary, or fenceline. Emissions monitoring data must be continuously collected at locations around the perimeter of the facility using passive sorbent tubes. The specific methods and equipment required to conduct monitoring are prescribed by USEPA.

Sorbent tubes are typically made of glass or stainless steel and contain various types of solid adsorbent material such as carbon or activated charcoal. The tubes trap and retain compounds such as benzene and are easily extracted for lab analysis.

USEPA requires the use of passive sorbent tubes, which are able to detect even very low levels of benzene. Every 2 weeks the tubes are gathered and sent to labs accredited in USEPA's designated test method for processing and analysis. Currently, USEPA expects that by May 2019, lab results for refineries across the country will be uploaded to USEPA's publicly available database.



## What Happens when benzene is detected?

As part of the Refinery Sector Rule, USEPA set an ‘action level’ for fenceline measurements of benzene. If a refinery’s annual, average fenceline measurements of benzene exceed this level; it must take action to correct the issues. USEPA set the action level at 9 micrograms of benzene per cubic meter ( $\mu\text{g}/\text{m}^3$ ) on an average annual basis. This level is below the limit that USEPA determined to represent unacceptable public health risks in their risk assessment and meets Clean Air Act requirements that set emissions limits with an ample margin of safety to protect public health.

USEPA’s action level is based on modeling of the expected emissions of U.S. refineries. The action level is not intended to represent a health-based standard, and exceedance of the action level does not indicate that the public’s health will be impacted.

To put USEPA’s action level in context, Washington State’s Department of Labor and Industry has identified 3,200 micrograms per cubic meter as the safe level for workers to be exposed to benzene, 8 hours a day, 5 days a week, over a working lifetime. This value was determined by toxicologists who evaluated health impacts to workers who are exposed to higher levels of benzene than the general public.

## What is the purpose of Fenceline Monitoring?

USEPA’s fenceline monitoring program is designed to help refineries and surrounding communities understand how the emissions controls in place at a refinery are working. Monitoring results support refineries in assuring that the emissions management systems

already in place are working as planned, and if they are not, requires that refineries take action to diagnose any potential issues and make adjustments well before emissions levels become hazardous to the community or workers.

USEPA has had strict benzene emissions limits in place for refineries across the country, including Washington State Refineries, since 1984. While the location of monitors around refinery fence lines is new, management of benzene emissions has been going on for decades.

## What does an exceedance mean?

An exceedance of the action level does not mean the local community is in danger. It means that the value observed was higher than expected and should be investigated. This could be due to higher emissions, but it could also be due to traffic activity or significant changes in weather patterns.<sup>3</sup>

If a refinery’s monitoring data shows that it exceeds USEPA’s defined action level on an average annual basis, an investigation must be conducted to understand what improvements can be made in refinery emissions management. Action must then be taken to bring emissions down to acceptable levels.

## Where can I learn more?

USEPA plans to publish emissions data on the Compliance and Emissions Data Reporting Interface (CEDRI), a public database. The CDC has prepared a “ToxFAQs” fact sheets for [benzene](#).

The USEPA also has Hazard Summaries for [benzene](#).

## Benzene and our Environment

*Benzene is used to produce many things that we commonly buy and consume, including rubber, plastic, nylon, and synthetic fibers. Benzene is also found in crude oil, gasoline, glue, and in some building and hobby craft materials. Everyday activities can also expose us to benzene, including sitting in traffic or in our homes.<sup>1 2</sup>*



### Sources:

- 1 <https://www.atsdr.cdc.gov/toxfaqs/tfacts3.pdf>
- 2 <https://www.epa.gov/sites/production/files/2016-09/documents/benzene.pdf>
- 3 <https://www.atsdr.cdc.gov/toxfaqs/tfacts3.pdf>