

## EPA'S FENCELINE MONITORING PROGRAM\*

In December 2015 the Environmental Protection Agency (EPA) issued the Refinery Sector Rule, an air toxics regulation that required, among other things, that refineries continually monitor the concentration of benzene emissions at the fenceline of their facilities beginning in January 2018.

Fenceline monitoring is being conducted to ensure the effectiveness of existing refinery emission controls by requiring refiners to monitor the concentration of benzene along the facility boundary. If elevated benzene concentrations are detected, the facility should identify the specific emission source(s) and take corrective actions.

Benzene is a colorless, sweet-smelling chemical that is formed from both natural processes (e.g., volcanic eruptions, forest fires) and human activities (e.g., smoking cigarettes) and can be found naturally in crude oil. It is primarily used as a raw material or a solvent in the chemical and pharmaceutical industries. It is important to note that benzene quickly evaporates in the atmosphere and that the level measured at the fenceline isn't necessarily the same as the level recorded in the community.

EPA set the maximum limit of benzene detected at the fenceline, or the "Action Level," at 9 micrograms per cubic meter (9 ug/m<sup>3</sup>) or 2.8 parts per billion (ppb) measured as an annual rolling average. In simpler terms, the Superdome's volume is roughly 1,000,000,000 gallons, so three one-gallon containers inside the Superdome equate to 3 parts per billion.

Refineries began reporting this data in May 2019 to EPA's Compliance and Emissions Data Reporting Interface (CEDRI) and will continue to report it on a quarterly basis. EPA will publish the data on WebFIRE, a publicly accessible website, also on a quarterly basis.

AFPM members work hard to operate in a safe and environmentally responsible manner. Our member companies share the public's concern for the environment and the health and safety of the communities that are home to our facilities and employees.

Refineries have invested billions of dollars to control their emissions and now facility emissions are nearly 75 percent lower than they were 1970. We will continue to work with EPA to help ensure that the data collected under this program is accurately portrayed in a user-friendly manner that meets the purpose of the program.

***\*The information provided in this Fact Sheet and FAQs comes from the EPA's Fenceline Monitoring Report.***

## **EPA'S FENCELINE MONITORING PROGRAM FREQUENTLY ASKED QUESTIONS\***

### ***Why is this data being collected?***

- EPA intended the fence line monitoring data to be used as a tool to assist a facility in measuring potential leaks and to assure that emission sources at facilities are effectively controlled. The data is not a measure of community exposure or risk.
- EPA's objective for the fence line monitoring program is to find the root cause of emissions and to require corrective action if the benzene levels exceed the threshold set by EPA.
- Fence line monitoring devices not only measure benzene from refineries but also from nearby sources that refineries do not manage, such as roadways, other industrial facilities, airports, marinas, and from exceptional natural events, like a hurricane or wildfire. These other sources contribute to the surrounding air quality and benzene levels measured at facility perimeters.

### ***What is benzene?***

- Benzene is a colorless, sweet-smelling chemical that is formed from both natural processes and human activities. It is found everywhere in the environment and is found naturally in crude oil. It is primarily used as a raw material or a solvent in the chemical and pharmaceutical industries.

### ***Why monitor for benzene?***

- The EPA selected benzene because it is a natural component of crude oil and is found in nearly all refinery processes. The majority of refinery benzene emissions are thought to be from leaky pipes, valves and equipment.
- Fence line monitoring allows for early detection of benzene emissions that will lead to early correction of a problem.

***If the benzene level at the fence line is above the level set by EPA, does that mean the air in the entire community is bad?***

- Fenceline monitoring does not measure concentrations that a community is exposed to, nor does it indicate a benzene emission level that presents a health risk to the public. It measures changes to benzene concentrations at the fenceline that may indicate increased emissions at the refinery.
- In addition to recording benzene from a facility, the fenceline monitors collect benzene concentrations from all nearby sources and readings could include emissions from sources and events that don't originate from the refinery (e.g., wildfires or even cigarette smoke) since the equipment is not capable of distinguishing the source of the benzene.

### *How is the data collected?*

- Fenceline monitors are “passive diffusive tubes,” or tubes that monitor low pollutant concentrations in the ambient air. They are placed around the entire property boundary of a refinery and allow for continual monitoring of benzene.
- Each tube is filled with an absorbent that collects hydrocarbons from the air and is sampled and analyzed in an independent lab. Every 14 consecutive days, the samples are collected and analyzed for benzene concentrations, and the monitoring cycle begins again.

### *What happens to the data after it's collected?*

- The benzene monitoring data collected by refineries are submitted electronically to the EPA's Compliance and Emissions Data Reporting Interface (CEDRI), a reporting application used by the agency and its stakeholders. This data is reported on a quarterly basis, beginning in May 2019.
- EPA will make the data available to the public on WebFIRE – a publicly accessible website, providing full transparency.

### *How is the data determined?*

- A refinery is required to subtract the lowest individual monitor reading from the highest individual monitor reading for each two-week period, this is called the Benzene Concentration Difference for a given sample period.
- Benzene concentration measurements from the two-week samples are required to be reported to EPA on a quarterly basis.

- The annual average is recalculated on a rolling basis, meaning it is updated for every two-week sampling period that is completed by the refinery. It is calculated from the most recent 26 two-week sampling periods. Since the rolling annual average is based on results from 26 individual two-week sampling periods, the rolling average may remain above the benzene action level for an extended period of time (as many as 25 additional sampling periods) after the root cause of the action level exceedance has been addressed.

### ***What does the data show?***

- Refineries were required to begin fenceline monitoring in 2018, and to begin reporting the results to EPA by May 15, 2019. The data was made public on USEPA's WebFIRE database 30 days after being reported.
- Based on a review of fenceline data for 107 refineries, over 64,000 benzene sample results were reported, with an average concentration less than 2 ug/m<sup>3</sup>. The sensitivity of the sampling method (99.6% detection), completeness of the data set (0.1% missing data), and strong correlation for other quality control metrics (duplicate samples matching primary samples) all serve to validate the dataset and overall fenceline monitoring program.

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