

Detroit Refinery Petroleum Coke Handling



Overview

Marathon Petroleum's Detroit Refinery is home to a world-class Petroleum Coke Processing unit that allows for the safe, efficient and clean use during the refining process.

During construction of the petroleum coke unit, Marathon implemented a number of state-of-the-art controls to eliminate any fugitive dust from the petroleum coke process. In accordance with the operating permit for this process, Marathon implemented an approved Fugitive Dust Control Plan. Below are the methods outlined in this plan to prevent and control fugitive dust.

During Production

- > **Water Curtain** – Once the pet coke has been hardened, a high-powered water jet is used to cut the coke from the drums. The wet pet coke is then discharged through an intense water curtain into a containment pit full of water the size of two Olympic-sized swimming pools. This wet process prevents fugitive dust emissions.
- > **Containment Pit** – The coke containment pit and staging pad are surrounded by 30' tall walls. A crane retrieves coke from the pit full of water for temporary staging, allowing excess water to drain. Water is recycled back into the process. Coke height is maintained below the height of the wall to prevent any blowing or spreading.
- > **Coke Pad Sprinkler System** – A high-volume sprinkler system is used to maintain the moisture content of the coke within the containment pit as an additional safeguard against fugitive dust.
- > **Enclosed Transfer/Crusher System** – The crane moves the coke on to a fully-enclosed conveyor. This fully enclosed conveyor has an air handling system equipped with a bag house filter system and a water wash to remove any fugitive dust that may have formed.

During Transportation

- > **Truck Load-out Building** – Truck loading occurs in an enclosed building with an air curtain and bag house filter system, ensuring that the quality of air in the building is safe for our employees. Coke samples are collected and analyzed three times per week for moisture.
- > **Vehicle Covers** – All transport trailers are covered before leaving the truck load-out building.
- > **Truck Wheel Wash and Rumble Strips** – Before exiting the load-out building, trucks pass over rumble strips and through a wheel wash designed to ensure all vehicles are clean prior to entering public roadways. All wash water is recycled back into the process.
- > **Visible Emissions Monitoring** – Visible emissions observations are conducted daily by the coke handling operators to confirm that the fugitive dust control system is properly preventing emissions from the coke processing and transport operations.

Additional Dust Control Practices

- > **On-site Speed Limits** – All vehicles travel at posted speed limits (5 mph in coke handling area).
- > **Vehicle Covers** – Material transport trailers are kept covered, except when loading or unloading.
- > **On-site Road Cleaning** – If needed, a street sweeper or water truck operates to clean refinery roads.
- > **Visible Emissions Monitoring** – Visible emissions observations are conducted by trained 3rd party personnel, on a monthly basis, to confirm that the fugitive dust control system is properly controlling emissions.
- > **Enhanced Street Sweeping Program** – The Detroit Refinery has voluntarily implemented an enhanced street sweeping program designed to control fugitive dust emissions from nearby roadways, including Oakwood Blvd., Dix Road, Schaefer Ave., and Fort Street.
- > **Perimeter Air Monitoring System (PAMS)** – The refinery maintains four air monitoring stations surrounding the refinery that continuously measure a variety of components including particulate matter.

Bulk solid material handling operations at the Detroit Refinery are regulated by the Michigan Department of Environment, Great Lakes, and Energy's Air Quality Division (Renewable Operating Permit No. MI-ROP-A9831-2012c). In accordance with this permit, Marathon has implemented an approved Fugitive Dust Control Plan that complies with the applicable emission control requirements of the Natural Resources and Environmental Protection Act and Michigan's Administrative Rules for Air Pollution Control.