Compilation of Air Emission Estimating Methods for Petroleum Distribution and Dispensing Facilities

Marketing Segment

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1 Introduction

1.1 Scope

This publication is a compilation of methods for estimating emissions associated with activities that may occur at typical petroleum distribution and dispensing facilities. Distribution facilities include bulk terminals, bulk plants, pipeline breakout stations, and pipeline pumping stations. Dispensing facilities are primarily retail service stations. Evaporative losses of volatile organic liquids (VOLs) from distribution and dispensing facilities occur primarily from transfer operations (i.e. refueling of motor vehicles, and the loading or unloading of tank trucks, railcars, and ships or barges), storage tanks, and equipment leaks (i.e. piping components such as valves and pumps).

Emission estimating methods have been developed to quantify total VOL emissions from these sources and to speciate these emissions. Speciation is the determination of the fraction of the total emissions that are attributable to given individual chemical compounds, or species.

Emission estimating methods change over time as more accurate methods are developed, emission controls change, and the compositions of petroleum products change in response to regulations and consumer needs.

1.2 Purpose

The purpose of this publication is to compile the most current and widely accepted emission estimating methods for petroleum distribution and dispensing facilities in one document.

Numerous studies have been conducted to estimate emissions from these facilities. As a result, more than one estimating method is sometimes available for a given emission-generating activity, with the different methods potentially having differing levels of complexity. There is a trade-off between accuracy and complexity of emission estimates. More accurate estimates require more information about the specific activity.

Section 3 of this publication provides the emission estimating methods. Emission estimating methods that can be stated briefly are provided in whole in Section 3; otherwise, the reader is referred to another document for the complete methodology. Section 3 contains three subsections: one for distribution facilities, one for dispensing facilities, and one for miscellaneous activities. Section 4 provides information on the properties of VOLs used to estimate emissions.

2 Definitions

40 *CFR* Part 63, Subpart BBBBBB [1], Section 63.11100, includes the following definitions related to gasoline distribution facilities.

2.1
bulk gasoline plant
Any gasoline storage and distribution facility that receives gasoline by pipeline, ship or barge, or cargo tank and has a gasoline throughput of less than 20,000 gal/day.

NOTE This differs from the definition implied by 40 *CFR* Part 60, Subpart XX [2], Section 60.501 and 40 *CFR* Part 63, Subpart R [3], Section 63.421. These rules do not define a bulk plant, but define a bulk terminal as any gasoline facility which receives gasoline by pipeline, ship or barge, and has a gasoline throughput greater than approximately 20,000 gal/day. This implies that a facility receiving only by cargo tank is a bulk plant, regardless of throughput.