

Risk-based Approach for Managing Hydrocarbon Vapor Exposure during Tank Gauging, Sampling, and Maintenance of Onshore Production Facilities

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Introduction

A combination of risk management considerations, practices, and communication can ensure safe operations for tank gauging, sampling, and maintenance of onshore production facilities. This combination of risk management strategies incorporating facility design, operational procedures, and activity-based risk assessment integrated across a life cycle is recommended for safe tank operations.

Risk-based Approach for Managing Hydrocarbon Vapor Exposure during Tank Gauging, Sampling, and Maintenance of Onshore Production Facilities

1 Scope

The scope of this standard covers recommended risk assessment and risk management practices to reduce the potential for acute worker hydrocarbon exposures and related atmospheric risks (i.e. potential oxygen deficiency). Specifically, this recommended practice is limited to onshore production tanks (including flowback tanks) during gauging and sampling, open-top tank sampling, and select tank maintenance activities involving removal or opening of tank appurtenances. While the tools and practices recommended in this document can be useful in other operations, this recommended practice does not specifically apply to downstream, refining, or offshore tank applications.

This standard specifically excludes risk assessment and management practices related to

- a) chronic hydrocarbon exposures,
- b) non-hydrocarbon substances such as hydrogen sulfide, and
- c) opening other process equipment, confined space entry, tank cleaning, or decommissioning activities.

2 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

2.1

communication protocols

A system of rules which allow for two or more entities of a communications system to transmit information.

2.2

flashing losses

The release of entrained gas from a liquid as the pressure on the liquid drops.

2.3

gas-to-oil ratio

The ratio of the gas produced in standard cubic feet to one barrel of oil produced during any stated period.

2.4

hazard

A situation, inherent chemical or physical property with the potential to do harm.

EXAMPLE Flammability, oxygen deficiency, toxicity, corrosivity, stored electrical, chemical or mechanical energy.

2.5

hydrocarbon

HC

Class of organic chemical compounds composed only of the elements carbon (C) and hydrogen (H).

NOTE The carbon atoms join together to form the framework of the compound, and the hydrogen atoms attach to them in many different configurations.