Manual of Petroleum Measurement Standards Chapter 3.1A

Standard Practice for the Manual Gauging of Petroleum and Petroleum Products

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Introduction

Personnel involved with the gauging of petroleum and petroleum-related substances should be familiar with their physical and chemical characteristics, including potential for fire, explosion, and reactivity, and with the appropriate emergency procedures as well as potential toxicity and health hazards. Personnel should comply with the individual company safe operating practices and with local, state, and federal regulations, including the use of proper protective clothing and equipment.

API Publication 2217, API Publication 2026, API Recommended Practice 2003, and any applicable regulations should be consulted when gauging. Information regarding particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the material safety datasheet.

Information on exposure limits can be found by consulting the most recent editions of the Occupational Safety and Health Standards, 29 *CFR* Section 1910.1000 and following and the ACGIII publication *Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment*.

Standard Practice for the Manual Gauging of Petroleum and Petroleum Products

1 Scope

This standard describes the following:

a) the procedures for manually gauging the liquid level of petroleum and petroleum products in nonpressure fixed-roof, floating-roof tanks and marine tank vessels;

b) procedures for manually gauging the level of free water that may be found with the petroleum or petroleum products;

c) methods used to verify the length of gauge tapes under field conditions and the influence of bob weights and temperature on the gauge tape length; and

d) influences that may affect the position of gauging reference point (either the datum plate or the reference gauge point).

Throughout this standard the term petroleum will be used to denote petroleum, petroleum products, or the liquids normally associated with the petroleum industry.

This standard is applicable for gauging quantities of liquids having Reid vapor pressures less than 103 kPa (15 psia).

The method used to determine the volume of tank contents from gauge readings is not covered in this standard.

The determination of temperature, density, API gravity, and suspended sediment and water of the tank contents are not within the scope of this standard; however, methods used for these determinations may be found in the API *Manual of Petroleum Measurement Standards* (*MPMS*).

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

API *Manual of Petroleum Measurement Standards* (*MPMS*) Chapter 2, (all sections) *Tank Calibration*

API *MPMS* Chapter 12.1, *Calculation of Static Petroleum Quantities*

API *MPMS* Chapter 17, (all sections) *Marine Measurement*

API Recommended Practice 2003, *Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents*

3 Terms and Definitions

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

3.1
closing gauge
Is an innage or outage gauge taken after the transfer of material into or out of the tank.

3.2
critical zone
The distance between the point where a floating roof is resting on its normal supports and the point where the roof is floating freely is referred to on a tank capacity table as the “critical zone.”