Manual of Petroleum Measurement Standards Chapter 3.1B

Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Tanks by Automatic Tank Gauging

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1 Introduction

This standard presents both metric (SI) units and U.S. customary units and may be implemented in either system of units. The presentation of both units is for the convenience of the user and is not necessarily an exact conversion. The units of implementation are typically determined by contract, regulatory requirement, the manufacturer, or the user's calibration program. Once a system of units is chosen for a given application, it is not the intent of this standard to allow arbitrary changing of units within this standard.

Safety precautions are listed separately from general precautions that affect accuracy or performance.

NOTE Precautions are given in addition to any existing federal, state, or local regulations (for example, the Occupational Safety and Health Administration) that govern practices described in this standard. Users of this standard should be familiar with all applicable safety and health regulations.

2 Scope

This standard covers the level measurement of liquid hydrocarbons in stationary, aboveground, atmospheric storage tanks using automatic tank gauges (ATGs). The standard discusses automatic tank gauging in general, accuracy, installation, commissioning, calibration, and verification of ATGs that measure either innage or ullage. It covers both intrusive and non-intrusive ATGs used for either custody transfer or inventory control. The standard also covers the requirements for data collection, transmission, and receiving.

This standard does not cover the following:

a) hydrocarbons having a Reid vapor pressure above 15 pounds per square inch (in.) absolute (100 kPa);

b) measurement of weight or mass with ATG equipment (this is covered in API *MPMS* Chapter 3.6 and Chapter 16.2);

c) measurement of the level in underground tanks or in pressurized tanks storing liquid hydrocarbons;

d) conversion of the tank level to liquid volume (this is covered in API *MPMS* Chapter 12.1);

e) measurement of temperature, sampling, density, and sediment and water (S and W), which are discussed in API *MPMS* Chapters 7–10.

Safety and material compatibility precautions should be taken when using ATG equipment. Manufacturers' recommendations on the use and installation of the equipment should be followed. Users should comply with all applicable codes and regulations, API standards, and the NFPA *National Electrical Code*.

3 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any addenda) applies.

API *MPMS* Chapter 3.1A, *Standard Practice for the Manual Gauging of Petroleum and Petroleum Products*