Manual of Petroleum Measurement Standards Chapter 20.5

Recommended Practice for Application of Production Well Testing in Measurement and Allocation

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Foreword

This edition of API Manual of *Petroleum Measurement Standards (MPMS)* Chapter 20.5 supersedes the below listed sections of API *MPMS* Chapter 20.1, *Allocation Measurement*, First Edition, 1993:

— 1.7.2.2.2 Test Separator;

— 1.11.1 Well Tests;

— 1.16.3.2 Field Test Separators;

— 1.16.3.3 Portable Test Separators;

— 1.16.5.1 Full-Scale Separator Test Report;

— Appendix J.

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Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, NW, Washington, DC 20001, standards@api.org.

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Introduction

This document establishes a framework to conduct and apply production well testing for well rate determination in measurement and allocation. Production well testing addressed in this document refers to measurement of gas, oil, and water quantities from a single well during a specified length of time under controlled operational conditions. The intent of this document is to provide operators with a consistent and transparent approach for conducting, applying, and managing production well testing within an upstream measurement and allocation system. It is not intended to prescribe a particular production well test method, or particular application of production well test data use in allocation. Allocation methodologies are addressed in API *MPMS* Ch. 20.1.

Recommended Practice for Application of Production Well Testing in Measurement and Allocation

1 Scope

This document provides recommendations and guidelines for the application of production well testing in production measurement and allocation. The recommendations and guidelines apply to conducting a production well test, calculating production well test volumes and rates, and the application of production well test data for use in measurement and allocation. This includes production well testing preparation, initiation, measurement, validation, and volume and rate calculations for separator, multiphase flow meter, and tank production well test systems. Additionally, this document addresses the proration of production well test results for use in allocation, the application of production well tests for validation and update of well flow models and virtual flow metering, and the adjustment of gas well continuous measurement results with production well test data.

This document also provides recommendations and guidelines for the application of well flow modeling and virtual flow metering in production measurement and allocation.

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 Draft Standard *Application of Hydrocarbon Phase Behavior Modeling in Upstream Measurement and Allocation Systems*

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

API *MPMS* Chapter 3.1B, *Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Tanks by Automatic Tank Gauging*

API *MPMS* Chapter 3.3, *Standard Practice for Level Measurement of Liquid Hydrocarbons in Stationary Pressurized Storage Tanks by Automatic Tank Gauging*

API *MPMS* Chapter 3.6, *Measurement of Liquid Hydrocarbons by Hybrid Tank Measurement Systems*

API *MPMS* Chapter 8.1, *Standard Practice for Manual Sampling of Petroleum and Petroleum Products*

API *MPMS* Chapter 8.2, *Standard Practice for Automatic Sampling of Liquid Petroleum and Petroleum Products*

API *MPMS* Chapter 11.1, *Temperature and Pressure Volume Correction Factors for Generalized Crude Oils, Refined Products and Lubricating Oils*

API *MPMS* Chapter 14.1, *Collecting and Handling of Natural Gas Samples for Custody Transfer*

API *MPMS* Chapter 18.1, *Measurement Procedures for Crude Oil Gathered from Small Tanks by Truck*

API *MPMS* Chapter 20.1, *Production Measurement and Allocation Systems*

API *MPMS* Chapter 20.2, *Production Allocation Measurement Using Single-phase Devices*

API *MPMS* Chapter 20.3, *Measurement of Multiphase Flow*