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LIQUID HYDROCARBONS—VOLUMETRIC MEASUREMENT BY TURBINE METER SYSTEMS

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Australian Liquefied Petroleum Gas Association

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PREFACE

This standard was prepared by the Association's Committee on Oil and Gas Measurement.

The standard is based on international standard ISO 2715 — 1981 with which it is technically identical. Minor editorial changes have been made where required so that the standard is consistent with SAA format.

Turbine meters consist essentially of a rotor which senses the mean velocity of a flowing stream. The moving liquid imparts a rotational or tangential velocity to the rotor which is proportional to the rate of flow. The movement of the rotor is detected by mechanical, optical, magnetic or electrical means and is recorded on a read-out device. The volume so registered must be compared with a known volume by proving.

This standard has been prepared as a guide for persons concerned with the design, installation, operation and maintenance of turbine metering assemblies for liquid hydrocarbons. Appendix A gives details of the parts and characteristics of turbine meters, and Appendix B provides a trouble-shooting guide.

Information on displacement meters appears in AS 2652, Liquid Hydrocarbons — Volumetric Measurement by Displacement Meter Systems Other than Dispensing Pumps. Future standards, both national and international, will deal with other types of meters, accessory equipment, provers and proving, the calculation of petroleum quantities, and specialized applications of metering systems containing turbine meters.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

LIQUID HYDROCARBONS—VOLUMETRIC MEASUREMENT BY TURBINE METER SYSTEMS

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard sets out the characteristics of turbine meters and gives requirements for their design and selection. It includes requirements for their installation in metering systems and describes how a system produces, or can be made to produce, accurate measurements.

This standard includes recommended operating and maintenance procedures for turbine meter systems.

NOTES:

1. A description of the parts and characteristics of turbine meters is given in Appendix A.
2. A trouble-shooting guide for turbine metering systems is given in Appendix B.

1.2 APPLICATION. The field of application is any division of the petroleum industry in which measurement is required. The content of this standard is general. It can be applied to the metering of different hydrocarbon liquids, to the use of turbine meters from any manufacturer, and to the various applications encountered. It does not necessarily apply to two-phase fluids.

1.3 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1514 Glossary of Terms Used in Metrology Part 1—General Terms and Definitions

AS 2430 Classification of Hazardous Areas Part 1—Explosive Gas Atmospheres

AS 2520 Petroleum Measurement Tables

AS 2707 Petroleum Liquids and Gases—Fidelity and Security of Dynamic Measurement—Cabled Transmission of Electric and/or Electronic Pulsed Data

AS 3000 SAA Wiring Rules

ISO 4124 Petroleum Metering Systems—Measurement Control Charts and Statistical Methods*

1.4 DEFINITION. For the purpose of this standard, the following definition applies:

Approved—approved by the Operating Authority and includes obtaining the approval of the relevant Statutory Authority where this is legally required. Approval requires a conscious act and is generally given in writing.

The definitions and terms applicable to metrology shall be in accordance with AS 1514, Part 1.

* In course of preparation.