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Australian Standard®

PETROLEUM LIQUIDS AND GASES—FIDELITY AND SECURITY OF DYNAMIC MEASUREMENT—CABLED TRANSMISSION OF ELECTRIC AND/OR ELECTRONIC PULSED DATA

This Australian standard was prepared by Committee ME/49, Oil and Gas Measurement. It was approved on behalf of the Council of the Standards Association of Australia on 15 February 1984 and published on 2 July 1984.

The following interests are represented on Committee ME/49:

Australian Gas Association

Australian Institute of Petroleum Limited

Australian Institute of Physics

Australian Liquefied Petroleum Gas Association

Australian Petroleum Exploration Association Limited

CSIRO, Division of Applied Physics

Department of Industry and Commerce

Department of Mines and Energy S.A.

Department of Minerals and Energy, Vic.

Department of Resources and Energy

Institute of Engineers Australia

National Standards Commission

The Pipeline Authority

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PREFACE

This standard was prepared by the Association's Committee on Oil and Gas Measurement. It is identical with and has been reproduced from International Standard ISO 6551 drawn up by ISO/TC 28, Petroleum Products and Lubricants.

For the purpose of this Australian standard, the text of the ISO standard used herein should be modified as follows:

(a) *Terminology:* The words 'Australian Standard' should replace the words 'International Standard' wherever they appear.

(b) *Decimal comma:* The decimal point should replace the decimal comma wherever it appears.

CONTENTS

Petroleum liquids and gases — Fidelity and security of dynamic measurement — Cabled transmission of electric and/or electronic pulsed data

0 Introduction

0.1 Quantitative measurements are required at many stages in production, transportation, refining and marketing of petroleum and its products. They form the basis of royalty, fiscal and custody transfer accounting and provide the means of stock and loss control.

The use of agreed standardized measurement equipment and procedures obviates disputes over quantities, enabling these to be determined with an accuracy mutually acceptable to all parties to a transaction and at the most economical cost for the method of measurement selected.

0.2 During the last decade there has been a rapid increase in the use of electrical or electronic data-transmission systems designed to facilitate the determination of physical quantities such as length, mass, volume, etc.

Such systems can be vulnerable to disturbances arising from the environment in which they are used, and also from functional failures, all or any of which may affect the integrity of the resulting measurement.

The purpose of this International Standard is to assist manufacturers and users of electrical or electronic pulsed data-transmission systems used in the metering of fluids to meet certain criteria for the design, installation, use and maintenance of such equipment. The object is to establish and maintain the credibility of indicated data against influences acting to impair the fidelity of the system.

0.3 This International Standard recommends solutions for fidelity and security problems which constitute good practice in this field at this time, but it is not claimed that the recommendations are wholly comprehensive.

The recommendations are, however, considered to be practicable, and to satisfy the immediate needs of industries associated with meter proving and the metering of hydrocarbons and hydrocarbon products in the bulk commercial, royalty metering, revenue accounting and custody transfer fields in general.

0.4 It is not intended that these recommendations should act to inhibit technological progress in the industry, and therefore amendments may be introduced as and when required.

The principles may be applied to the metering of solids.

0.5 Clauses have been included on safety and other precautions that constitute good practice.

Although every care is taken to include such clauses wherever necessary, it is impossible to cover all contingencies. In the designing of measurement and sampling operations, attention should also be given to general codes of safe practice for petroleum operations. The operator or other user of this measurement standard should work according to accepted safe practices and comply with all relevant regulatory requirements.

0.6 This International Standard is recommended for general adoption but it must therefore be read and interpreted in conjunction with legal metrology (weights and measures), safety and other regulations in force in a particular country in which it is intended to apply it.

1 Scope and field of application

1.1 General

This International Standard establishes guidelines for ensuring the fidelity and security of pulsed data cabled transmission systems utilized for the metering of fluids (see the note), a main objective being to ensure the integrity of the primary indication (see 2.2.5).

NOTE – Compliance with the requirements of this International Standard does not increase the basic precision of measurement, either in the electrical or electronic section of the system, or in the overall system which includes the meter(s).