AS 4645—2005

Australian Standard™

Gas distribution network management

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Australian Liquefied Petroleum Gas Association
Energy Networks Association
Energy Retailers Association of Australia
Gas Technical Regulators Committee
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Australian Standard™

Gas distribution network management

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PREFACE

This Standard was prepared by the Standards Australia Committee AG-008, Gas Distribution to supersede AG-603. This Standard is a fully restructured and revised edition of AG 603, *Gas Distribution Code* that was published in 1978 (and last revised in 1982). The 1982 edition needed fundamental updating for a reformed industry environment.

The Committee primarily addressed the safety aspects of managing a fuel gas distribution network. It maintained a close liaison throughout with the Standards Australia Committee ME-038.

Users of the Standard should note that AS 1697 has been revised by AG-008 in parallel with the revision of this Standard. AS 1697 which is now titled *Installation and maintenance of steel pipe systems for gas,* (and AS 3723, *Installation and maintenance of plastics pipe systems for gas*, now under revision) have a supporting relationship with AS 4645 as depicted in Figure 1.1

A Standard finalized by the Committee in 1997, AG 606 (to become AS 4568), *Code of practice for the preparation of a safety and operating plan for gas networks*, deals with safety and operating plans (also known as safety cases) for regulatory authority purposes. AS 4645 gives safe management and safe operating requirements intended to be specified in safety and operating plans.

LP Gas distribution networks are included.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

The Standard is not a design handbook, nor a manual on distribution practices. It does not remove the need for qualified and experienced engineering design, installation and operation or for competent engineering judgement, and does require interpretation and implementation by competent engineers.

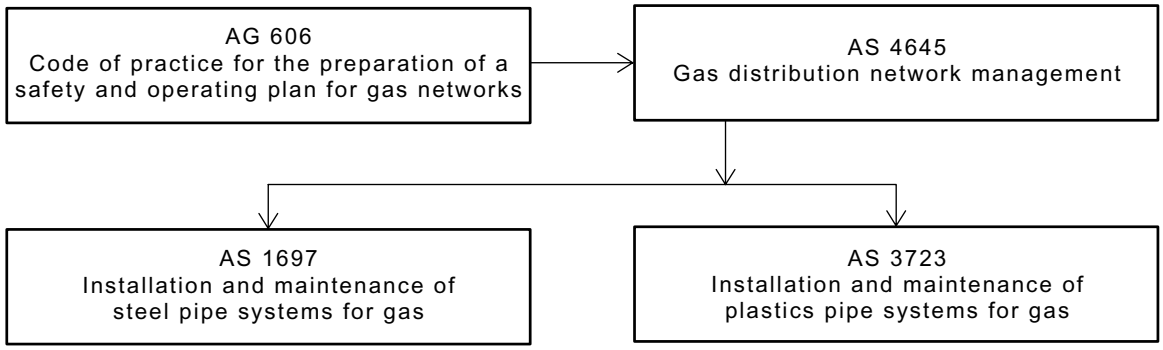

FIGURE 1.1 RELATIONSHIPS BETWEEN STANDARDS

NOTES:

1 AG 606 (to be AS 4568) is used for preparation of SOP/SC as required by technical regulator (advisory only).

2 AS 4645 specifies safety management of a gas distribution network for its life cycle. Refers to AS 1697 for steel and AS 3723 for plastics (see Note 3).

3 AS 1697 and AS 3723 specify material specific requirements for construction and installation (and operation/repair where material specific).

The Standard was prepared to provide an adequate risk based framework for management of a gas distribution system, by specifying performance requirements and avoiding detailed prescription as much as is possible. Where appropriate, detailed requirements (which tend to be prescriptive) are provided in AS 1697 for steel pipes and AS 3723 for plastic pipe.

The Standard relies on a risk management approach, as needed to meet regulatory requirements in most States. Risk management processes and criteria were initially developed in AG 606 (to be AS 4568), in anticipation of new regulatory regimes for gas distribution systems. AG 606 (to be AS 4568) will be reviewed and if necessary refined to meet the evolving needs.

CONTENTS

Page

STANDARDS AUSTRALIA

Australian Standard
Gas distribution network management

S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard specifies requirements for safe management of a fuel gas distribution network throughout the life cycle of all elements of that network.

NOTE: Appendix A describes life-cycle phases.

The requirements apply to the life cycle of new assets in new or existing systems, but the Sections on operations, maintenance, repair and decommissioning are suitable for application to existing assets in existing systems.

Gas distribution networks within the scope of this Standard comprise of all facilities between the outlets of all city gate supply points or equivalent (being wherever pressure is reduced to below 1050 kPa), or for an LP Gas network the point of entry to the network operator's facility, and the outlet of the consumer's meter assemblies, as detailed in Figure 1.2.

Detailed requirements for design and materials, construction, testing and commissioning of steel and plastic mains and services within a network, are specified by reference to—

(a) AS 1697 for steel mains and services; and

(b) AS 3723 for plastic mains and services.

Details for design and maintenance of gas control plant and equipment associated with the distribution network are specified by reference to—

(i) AS 4041 for design of above ground steel pipework and facilities; and

(ii) AS 3873 for maintenance of above ground facilities.

NOTES:

1 Some requirements of this Standard are suitable for consumer piping operating at >200 kPa, being not otherwise provided in AS 5601. The operator of such piping should decide which requirements are appropriate, and should obtain any necessary agreement from the regulator having jurisdiction over the operation of that piping.

2 The relevant technical regulator may regard this Standard as appropriate for other than fuel gas.

3 AG 606 (to be AS 4568) provides guidance for preparation of a Safety and Operating Plan for gas networks.

1.2 EXCLUSIONS

This Standard does not apply to the following:

(a) Piping from the outlet of the meter that measures gas to a consumer, and any other piping covered by AS 5601.

NOTE: Requirements for pipes downstream of the consumer's meter are generally provided in AS 5601, but where the operating pressure of the downstream pipe will be higher than provided for in AS 5601, the piping requirements of this Standard are appropriate according to the pressure (or AS 2885.1 for even higher pressures).

