

***IGEM/GL/2 Edition 3
Communication 1816***

***Planning of gas transmission and storage
systems operating at pressures exceeding
16 bar***

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SECTION 1 : INTRODUCTION

- 1.1 This Standard supersedes IGE/GL/2 Edition 2, Communication 1727, which is obsolete.
- 1.2 This Standard is part of a series of Institution of Gas Engineers and Managers (IGEM) publications providing requirements and guidance to support the Gas Safety (Management) Regulations (GS(M)R) and the Pipelines Safety Regulations (PSR). It has been drafted by an IGEM Panel appointed by IGEM's Gas Transmission and Distribution Committee, subsequently approved by that Committee and has been approved by IGEM's Technical Coordinating Committee on behalf of Council.
- 1.3 Requirements are provided for the planning of transmission and distribution systems so that as far as possible, continuity of gas supply is maintained to consumers on the system, and at a sufficient pressure that their appliances continue to operate at all times, unless load shedding has been initiated (through commercial agreements or in an emergency situation).
- 1.4 The relevant parts of this Standard may be cited in the gas transporter's (GT's) Safety Case, but the Health and Safety Executive (HSE) will need to satisfy itself that the parts are appropriate and have been properly applied in each case.
- 1.5 Terms such as Maximum Operating Pressure (MOP), and "operating pressure" (OP) reflect gas pressure terminology used in European standards. These terms will arise in all relevant IGEM Standards and possibly in other standards.
- 1.6 This Standard makes use of the terms "must", "shall" and "should" when prescribing particular procedures. Notwithstanding clause 1.9:
- the term "must" identifies a requirement by law in Great Britain (GB) at the time of publication
 - the term "shall" prescribes a procedure which it is intended, will be complied with in full and without deviation
 - the term "should" prescribes a procedure which it is intended, will be complied with unless, after prior consideration deviation is considered to be acceptable.

Such terms may have different meanings when used in legislation, or HSE Approved Codes of Practice (AcoPs) or guidance, and reference needs to be made to such statutory legislation or official guidance for information on legal obligations.

- 1.7 It is now widely accepted that the majority of accidents in industry generally are in some measure attributable to human as well as technical factors. People who initiated actions that caused or contributed to accidents might have acted in a more appropriate manner to prevent them.

To assist in the control of risk and proper management of these human factors, due regard should be taken of HSG48 and HSG65.

- 1.8 The primary responsibility for compliance with legal duties rests with the employer. The fact that certain employees, for example "responsible engineers", are allowed to exercise their professional judgement does not allow employers to abrogate their primary responsibilities. Employers must:
- have done everything to ensure, so far as it is reasonably practicable, that "responsible engineers" have the skills, training, experience and personal qualities necessary for the proper exercise of professional judgement

- have systems and procedures in place to ensure that the exercise of professional judgement by “responsible engineers” is subject to appropriate monitoring and review
- not require “responsible engineers” to undertake tasks which would necessitate the exercise of professional judgement that is not within their competence. There should be written procedures defining the extent to which “responsible engineers” can exercise their professional judgement. When “responsible engineers” are asked to undertake tasks which deviate from this, they should refer the matter for higher review.

1.9 Notwithstanding clause 1.6, this Standard does not attempt to make the use of any method or specification obligatory against the judgement of the responsible engineer. New and improved practices may be adopted prior to this Standard being updated. Amendments to this Standard will be issued when necessary and their publication will be announced in the Journal of the Institution and other publications as appropriate.

1.10 Requests for interpretation of this Standard in relation to matters within its scope but not precisely covered by the current text should be either:

- addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA; or
- emailed to technical@igem.org.uk.

These will be submitted to the relevant Committee for consideration and advice, but in the context that the final responsibility is that of the engineer concerned. If any advice is given by or on behalf of IGEM, this does not imply acceptance of liability for the consequences and does not relieve the responsible engineer of any of his or her obligations.

1.11 This Standard was published in March 2018.

SECTION 2 : SCOPE

- 2.1 This Standard contains advice on the planning and design of Natural Gas (NG) systems and any associated storage (hereafter referred to as "systems") of MOP exceeding 16 bar. The Standard does not encompass the availability of gas entering the system. Its purpose is to ensure that there is sufficient transportation capability in the system.

Note: Compliance with this Standard ensures that as far as is reasonably practicable, a system is able to maintain security of supply under the most onerous combinations of flow and pressure on the system, and that adequate arrangements are established to minimise the risk of a supply emergency (see Appendix 3).

- 2.2 This Standard includes the requirements for information exchange between different GTs and network owners at system boundaries, to ensure the continuity of gas flow.

- 2.3 This Standard is intended to be used by persons involved in the planning of new systems and for the ongoing monitoring and reinforcement of existing systems, where appropriate.

- 2.4 This Standard applies to the planning of new systems and replacement of, or extension to, servicing, maintenance of existing systems. It is not retrospective, but it is recommended that existing systems be modified to meet this Standard, when appropriate.

Note: Standards rarely cover the retrospective issue of existing installations. They can, however, set a basis for consideration of performance upon which a risk assessment can be developed.

- 2.5 This Standard does not cover the physical design, construction, operation and maintenance of systems, or any routing and environmental considerations covered by legislation other than that referred to above. Refer to IGEM/TD/1 for further information on these requirements.

- 2.6 All pressures are gauge pressures unless otherwise stated.

- 2.7 Italicised text is informative and does not represent formal requirements.

- 2.8 Appendices are informative and do not represent formal requirements unless specifically referenced in the main sections via the prescriptive terms "must", "shall", or "should".