IGEM
Institution of
Gas Engineers & Managers

IGEM/SR/14 Edition 2
Communication 1742

Fixed volume storage for lighter than air gases

Founded 1863
Royal Charter 1929
Patron: Her Majesty the Queen

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Price Code: C4S

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ISBN 978 1 905903 17 7
ISSN 0367 7850
Published by the Institution of Gas Engineers and Managers

Previous Publications:
Communication 1600 (1993) – 1st Edition - Part 1
Communication 1601 (1993) – 1st Edition - Part 2

For information on other IGEM Standards please visit our website, www.igem.org.uk

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SECTION 1 : INTRODUCTION

1.1 IGE/SR/14 Part 1 on above ground storage was published in 1993 as Communication 1600. IGE/SR/14 Part 2 on buried pipe arrays was published in 1993 as Communication 1601. This edition of the Standard supersedes both those editions which are obsolete.

1.2 This Standard has been drafted by a Panel appointed by the Institution of Gas Engineers and Managers (IGEM) Gas Transmission and Distribution Committee, subsequently approved by that Committee and published by the authority of the Council of IGEM.

1.3 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 in the sense that actions by people initiated or contributed to the accidents, or people might have acted better to avert them.

It is therefore necessary to give proper consideration to the management of these human factors and the control of risk. To assist in this, it is recommended that due cognisance be taken of the publication HSG48.

1.4 This Standard makes use of the terms "should," "shall" and "must". Notwithstanding Sub-Section 1.6:

- the term "must" identifies a requirement by law in Great Britain (GB) at the time of publication
- the term "shall" prescribes a requirement which, it is intended, will be complied with in full and without deviation
- the term "should" prescribes a requirement which, it is intended, will be compiled with unless, after prior consideration, deviation is considered to be acceptable.

Such terms may have different meanings when used in legislation, or Health and Safety Executive (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.

1.5 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:

(a) have done everything to ensure, so far as is reasonably practicable, that there are no better protective measures that can be taken other than relying on the exercise of professional judgement by "responsible engineers".

(b) have done everything to ensure, so far as is reasonably practicable, that "responsible engineers" have the skills, training, experience and personal qualities necessary for the proper exercise of professional judgement.

(c) have systems and procedures in place to ensure that the exercise of professional judgement by "responsible engineers" is subject to appropriate monitoring and review.

(d) not require "responsible engineers" to undertake tasks which would necessitate the exercise of professional judgement that is beyond their competence. There should be written procedures defining the extent to which "responsible engineers" can exercise their judgement. When "responsible engineers" are asked to undertake tasks that deviate from this, they should refer the matter for higher review.

1.6 Notwithstanding Sub-Section 1.4, this Standard does not attempt to make the use of any method or specification obligatory against the judgement of the responsible engineer. Where new and better techniques are developed and proved, they should be adopted without waiting for modification to this Standard. Amendments to this Standard will be issued when necessary and their publication will be announced in the Journal of IGEM and other publications as appropriate.

1.7 Requests for interpretation of this Standard in relation to matters within their scope, but not precisely covered by the current text, should be addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA and 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 relieve the responsible engineer of any of his or her obligations.

1.8 This Standard was published in January 2010.

SECTION 2 : SCOPE

2.1 This Standard covers the safety aspects of design, construction, commissioning, operation, maintenance, decommissioning, inspection, modification and repair of:

- horizontal vessels and
- buried pipe arrays

for the storage of fuel gases with a specific gravity of less than 0.7, together with associated pipework and valves. The extent of the installations covered is shown in Figure 1.

2.2 This Standard does not cover pressure raising or pressure reduction plant.

2.3 There are no upper or lower operating pressure limits imposed by this Standard.

2.4 This Standard relates specifically to storage associated with transmission and distribution systems. It is not intended to cover gas storage reservoirs and associated pipework forming part of control and safety equipment.

2.5 This Standard draws attention to those aspects of fixed volume storage design, operation and maintenance which have a direct bearing on safety. It does not in itself constitute a design, operation or maintenance manual but is intended to be taken into consideration when preparing such documents.

2.6 This Standard applies for all new installations and, although not retrospective, may be applied to existing installations so far as is reasonably practicable.

2.7 Unless otherwise stated, the term "vessel" means "fixed volume storage vessel" and the term "array" means "buried pipe array".

2.8 All pressures are gauge pressures unless otherwise stated.

2.9 Italicised text is informative and does not represent formal requirements.

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