Hydrocarbon management

HM 30

Procedures for liquefied petroleum gas (LPG) cargo inspections

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PROCEDURES FOR LIQUEFIED PETROLEUM GAS (LPG) CARGO INSPECTIONS

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This publication has been produced as a result of work carried out within the Technical Team of the EI, funded by the EI's Technical Partners. The EI's Technical Work Programme provides industry with cost-effective, value-adding knowledge on key current and future issues affecting those operating in the energy sector, both in the UK and internationally.

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FOREWORD

The Energy Institute (EI) Hydrocarbon Management Committee (HMC) is responsible for the production and maintenance of standards and guidelines covering various aspects of static and dynamic measurement of petroleum. The Hydrocarbon Management Committee 3 (HMC-3) deals primarily with the independent inspection issues, focusing in particular on marine cargoes.

HMC-3 is made up of experts from independent inspection companies, oil companies, service companies, and loss control consultants. Additional participation in document development is also provided by members of the EI Hydrocarbon Management Asian Forum, based in Singapore.

The EI maintains liaison with parallel working groups of the American Petroleum Institute's (API's) Committee on Petroleum Measurement, and other organisations concerned with quantitative measurement in other countries, and in other industries.

The EI Hydrocarbon Management Guidelines (formerly Petroleum Measurement Manual and Petroleum Measurement Papers) are widely used by the petroleum industry and have received recognition in many countries by consumers and the authorities. In order to promote their wide adoption internationally, it is the policy to submit selected standards via the British Standards Institution's (BSI) to the International Organization of Standardization's (ISO's) technical committee TC-28 Petroleum Products and Lubricants, as potential International Standards.

A full list of Hydrocarbon Management Guidelines is available on request from the EI.

The EI Hydrocarbon Management Guidelines are recommended for general adoption but should be read and interpreted in conjunction with safety, environmental, weights and measures, customs and excise and other regulations in force in the particular country in which they are to be applied. Such regulatory requirements have precedence over corresponding clauses in the EI document except where the requirements of the latter are more rigorous, when its use is recommended. Users should also consider contractual constraints imposed by charterers, cargo owners, ship owners and any other interested party.

Although it is believed that adoption of the recommendations of this guideline will assist the user, the EI cannot accept any responsibility, of whatsoever kind, for damage or alleged damage arising or otherwise occurring on vessels or in or about premises where this document has been applied as final responsibility for adequate preparation of the vessel to receive a cargo lies with the parties controlling this task.

Users of these guidelines are invited to send comments, suggestions, or details of relevant experience to:

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Amspec
BP Oil International Ltd
Cargo & Marine Consultants SAS
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CWA International Limited
Inspectorate International
Intertek Caleb Brett
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Marine Cargo Experts Ltd
Minton Treharne and Davies
OBQS Ltd
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Petrus
Phillips 66 Limited
Saudi Aramco
Saybolt
SGS
Shell

PREFACE

The documents published by the EI dealing with procedures for cargo measurements are:

- HM 28. *Procedures for crude oil cargo inspections.*
- HM 29. *Procedures for petroleum product cargo inspections.*
- HM 30. *Procedures for LPG cargo inspections.*
- HM 51. *Procedures for bulk liquid chemical cargo inspections.*
- HM 68. *Procedures for bulk liquid fatty acid methyl esters (FAME) and blended biodiesel cargo inspections.*

1 SCOPE

1.1 GENERAL

This document provides liquefied petroleum gas (LPG) cargo measurement procedures for use primarily by cargo inspectors and to specify procedures directed at minimising cargo contamination and losses. In the absence of, or in conjunction with, specific client guidelines, the following document should be considered a summary of best practices used within the industry.

Where the term 'measurement' is used in a general sense, it should be taken to include all aspects of cargo inspection including (but not limited to) tank inspection/assessment, sampling, laboratory analysis and testing and other superintending activities, as required by the inspector's Principal(s).

The points at which cargo inspectors are required to make their measurements are described, and definitions of the terms used throughout this document are provided in Annex A. Whenever possible, terms approved by API, EI and ISO/TC28 have been adopted.

The document also considers the purpose of a cargo survey and summarises the general responsibilities. These procedures may become contractual if reference to them is made in either a nomination or acknowledgement.

Safety matters and related responsibilities are defined, and emphasis is placed on the need for cargo inspectors to be continually conscious that safety requirements take precedence over all other considerations.

This document describes detailed procedures which inspectors are required to follow, and provides references to analytical test methods and calculations. Reference is made to alternative methods, since the procedures recognise that within the industry opinions may vary regarding the use of test methods, especially where different methods may be specified by parties and contractors.

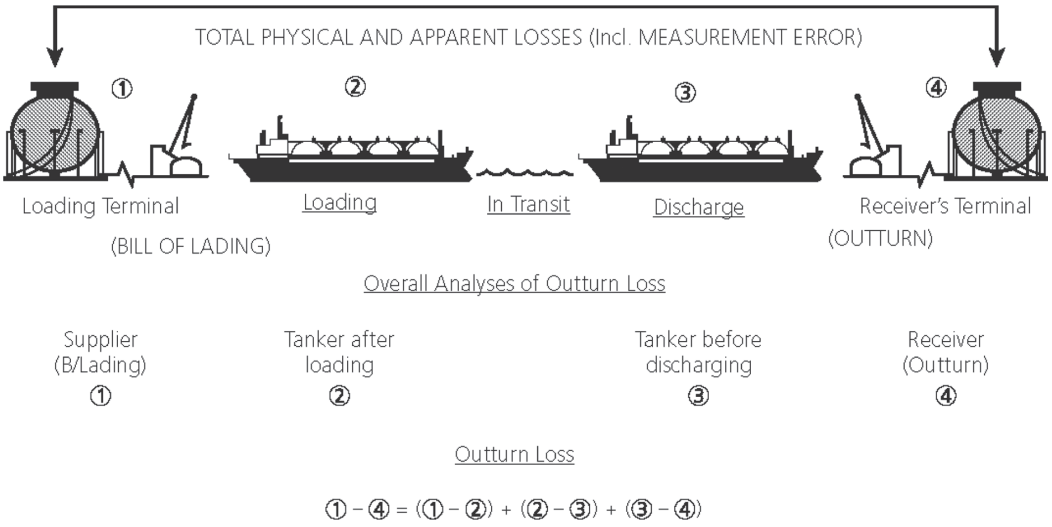
1.2 MEASUREMENT STAGES

When a cargo is transported by vessel from one shore terminal to another, measurements are normally made at four locations, as shown in Figure 1, for the purpose of establishing:

(a) the quantity of cargo delivered (i.e. to confirm the quantity of cargo shown on the Bill of Lading);
(b) the quantity of cargo loaded to the vessel;
(c) the quantity of cargo discharged by the vessel;
(d) the quantity of cargo received by the receiving terminal, and
(e) the difference between the quantities established under (a) to (d).

Note 1: for a particular voyage involving more than one loading port or discharge port, measurements should be made at all such additional ports in order that a reliable comparison can be made between the cumulative quantities shown on the Bill of Lading, outturn and ship's figures.

Note 2: for offshore and ship-to-ship transfer operations, please refer to Annex F.



Shore-to-shore difference, (4–1) = (2–1) + (3–2) + (4–3)
Note: by convention, losses have a negative sign.

Figure 1: Marine transfer measurement points

1.3 QUALITY CONTROL

It is recognised that contamination may occur during the various transfer and transportation stages of cargo movement.

Procedures and recommendations for a testing schedule are given which can help to minimise such contamination risk.

1.4 SUMMARY OF DATA TO BE REPORTED

It is recognised that cargo inspection companies and their Principal(s) each have their preferred way of recording the data to be reported, or particular forms; therefore, they are not prescribed by this procedure. However, sufficient information to define a cargo loading or discharge operation is provided in section 6. This listing represents a consensus of several cargo inspection companies and their clients when contracts are being arranged.