Guidance on the notification and reporting of dangerous occurrences involving spillages of dangerous substances under the *Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013* (RIDDOR)

2nd edition

GUIDANCE ON THE NOTIFICATION AND REPORTING OF DANGEROUS OCCURRENCES INVOLVING SPILLAGES OF DANGEROUS SUBSTANCES UNDER THE REPORTING OF INJURIES, DISEASES AND DANGEROUS OCCURRENCES REGULATIONS 2013 (RIDDOR)

2nd edition

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FOREWORD

This publication provides guidance to operators of road tanker loading facilities (e.g. bulk storage installations including terminals, depots, etc.), operators of road tanker unloading facilities (e.g. depots, filling stations, airport tank farms, agricultural premises, etc.), and road tanker fleet operators on the reporting of dangerous occurrences involving releases of flammable fuels during road tanker loading and unloading in Great Britain (GB) under the *Reporting of Injuries, Diseases and Dangerous Occurrences Regulations* 2013 (RIDDOR). The publication identifies who should report such dangerous occurrences and sets out factors under which dangerous occurrences should be reported when quantities released fall below the RIDDOR flammable fuel quantity reporting thresholds.

Flammable fuels are regularly loaded and unloaded in the fuel supply chain. Whilst there are numerous systems (engineering, management, procedural, etc.) in place to reduce the risk of release of flammable fuels, sometimes releases occur. In the event of a release, RIDDOR require the responsible person to report incidents meeting defined criteria to the relevant enforcing authority (in GB, the Health and Safety Executive (HSE)), to assist HSE to develop strategies to avoid future incidents and help prevent fatalities, injuries and incapacitation of people, and accidental loss.

EI *Guidance on reporting of dangerous occurrences involving releases of flammable fuels during road tanker loading and unloading under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR),* (2nd ed.) usurps the 1st edition (EI *Recommendations for notification and reporting of dangerous occurrences involving spillages of dangerous substances in the downstream petroleum industry under RIDDOR 95*). The key change is to align the guidance with RIDDOR 2013. In doing so, it now excludes reporting of incidents occurring during road transport by road tanker as this is no longer required by RIDDOR as such incidents are subject to UNECE *ADR* (see its Annex A, Part 1, clause 1.8.5).

The information contained in this publication is for guidance only, and while every reasonable care has been taken to ensure the accuracy of its contents, the EI, and its technical committees, cannot accept any responsibility for any actions taken, or not taken, on the basis of this information. The EI shall not be liable to any person for any loss or damage that may arise from the use of any of the information contained in any of its publications.

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This publication has been developed by EI's Distribution and Marketing Safety Committee (DMSC), which comprised:

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Affiliations refer to the time of participation.

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Technical editing and project coordination was initially carried out by Andrew Sykes and latterly carried out by Dr Mark Scanlon (EI).

1 INTRODUCTION, PURPOSE, SCOPE AND APPLICATION

1.1 INTRODUCTION

The *Reporting of Injuries, Diseases and Dangerous Occurrences Regulations* 2013 (RIDDOR), require a responsible person to report prescribed incidents to the relevant enforcing authority (in GB, the Health and Safety Executive (HSE)). These regulations are supported by guidance (HSE *RIDDOR*), which provides advice on meeting the requirements of RIDDOR. RIDDOR are made under the Health and Safety at Work etc. Act 1974 and apply reporting requirements to all GB work activities.

This publication builds on the regulations and guidance listed here by providing guidance to the flammable fuels distribution sector on the reporting of dangerous occurrences involving releases of flammable fuels during road tanker loading and unloading.

1.2 PURPOSE

The main purpose of reporting under RIDDOR is to generate reports to the HSE to alert it of individual incidents. RIDDOR reports also provide data which are used to indicate where and how risks arise and to identify industry trends in reportable injuries, diseases and dangerous occurrences. This enables the HSE to target its activities effectively and to advise employers on strategies to help prevent fatalities, injuries, incapacitation, ill health and accidental loss, through shared learning.

Dangerous occurrence reporting is designed to obtain information primarily about incidents which have a high potential to cause reportable injuries (even though they do not actually cause such injuries), but which happen relatively infrequently. Collecting the information gives the HSE the opportunity to learn about the circumstances in which incidents occur and about their causes. This widens the pool of information which can be used to help business in accident prevention work.

This publication aims to clarify the requirements for reporting of dangerous occurrences involving releases of flammable fuels during road tanker loading and unloading, including a consideration of the potential to cause reportable injuries or harm to people. The publication also identifies who should report such dangerous occurrences (the 'responsible person') depending on the incident location.

1.3 SCOPE

This publication provides guidance to the flammable fuels distribution sector on the reporting of dangerous occurrences involving releases of flammable fuels during road tanker loading and unloading (specifically, RIDDOR Schedule 2, Part 2, paragraph 26 (replicated in Annex A)). It does not address the requirements to report reportable injuries, diseases or other types of dangerous occurrences covered by RIDDOR, nor does it cover reporting requirements for releases of flammable fuels at bulk storage installations subject to the *Control of Major Accidents Hazards (COMAH) Regulations*, or during the carriage of dangerous goods, which have been removed from RIDDOR and are subject to UNECE *ADR* Annex A, Part 1, clause 1.8.5.

The scope of work excludes emergency preparedness and response to incidents, whether at road tanker loading or unloading locations, or any other locations (e.g. during road transport).

This publication does not cover modes of transport of flammable fuels other than by road tanker.

The scope of flammable fuels includes those liquids and gases, whether they are used as fuels or otherwise, that meet the 'flammable liquid or gas' definition in HSE *RIDDOR* (see Annex A): practically, this would include refined petroleum products and biofuels and their blends, such as compressed natural gas (CNG), denatured ethanol, kerosene, liquefied petroleum gas (LPG), methanol and petrol (gasoline).

1.4 APPLICATION

This publication provides guidance to operators of road tanker loading facilities (e.g. bulk storage installations including terminals, depots, etc.), operators of road tanker unloading facilities (e.g. depots, filling stations, airport tank farms, agricultural premises, etc.), and road tanker fleet operators. It is based on RIDDOR, which apply in GB; a similar rationale could be applied in Northern Ireland, which has similar regulations.

2 RIDDOR DANGEROUS OCCURRENCES

2.1 GENERAL

Certain incidents that arise out of, or in connection with, work activities where there is potential to cause reportable injuries or harm to people are considered dangerous occurrences. RIDDOR regulation 7 and RIDDOR Schedule 2, Part 2 (replicated in Annex A) define the reportable dangerous occurrences, some of which are relevant to the flammable fuels distribution sector.

2.2 APPLICATION OF RIDDOR TO RELEASES OF FLAMMABLE FUELS DURING ROAD TANKER LOADING AND UNLOADING

A release of flammable fuels during road tanker loading and unloading may fall within the scope of RIDDOR requirements; however, applying those criteria consistently lacks clarity and some incidents below those criteria may have the potential to cause reportable injuries or harm to people, or to escalate.

RIDDOR Schedule 2, Part 2, Paragraph 26 (see Annex A) uses the phrase 'sudden, unintentional and uncontrolled release', and, whilst not defined in RIDDOR or HSE *RIDDOR*, these terms have previously been interpreted as causing or having the potential to cause reportable injuries or harm to people. Practically, operations such as the disconnection of dry-break road tanker hose couplings with release into a drip tray or drain down of a road tanker compartment to a drain-down facility would not meet the intent of the RIDDOR phrase 'sudden, unintentional and uncontrolled release', whereas, rupture of a road tanker hose during loading, or overfill of a customer tank during unloading of a road tanker would constitute a 'sudden, unintentional and uncontrolled release'.

Most releases of flammable fuels during road tanker loading and unloading occur in open air and are subject to the reporting threshold of ≥500 kg (RIDDOR Schedule 2, Part 2, Paragraph 26(b) – see Annex A). However, this publication advocates that reporting of dangerous occurrences should not necessarily be limited to that threshold, given that a non-routine flammable atmosphere created from a release of say 400 kg has the potential to impact an adjacent ignition source, such as at another gantry bay during road tanker loading or impact an off-site ignition source during road tanker unloading at a filling station. This is because the extent, duration and dispersal of non-routine flammable atmospheres (i.e. those formed outside normal operations) by flammable fuels depends on a number of factors, including fuel factors (e.g. flash point, etc.), physical parameters (e.g. form of release – liquid, jet, vapour, mist or spray, release height, etc.), and environmental factors (e.g. air and ground temperatures, wind speed, humidity, etc.). Therefore, this publication advocates that for releases <500 kg in open air the responsible person should assess the potential for reportable injuries or harm to people, or for the incident to escalate, and consider reporting as a RIDDOR dangerous occurrence.

This need to report as a RIDDOR dangerous occurrence releases <500 kg in open air is compounded by the fact that it may not be clear immediately whether an incident has a potential to cause reportable injuries or harm to people, or for the incident to escalate. In such cases it is better for the responsible person to make a prompt report, rather than waiting until the potential consequences are confirmed by tests, further investigation (e.g.

determination of quantity of flammable fuel released by stock reconciliation, etc.). Such a delay could lead to the loss of valuable information relating to the incident.

2.3 IDENTITY OF RESPONSIBLE PERSON

Should a release of a flammable fuel occur during road tanker loading or unloading, reporting duties are placed on the responsible person whose identity should be determined by the location of the incident (see Table 1). These definitions may differ from those in RIDDOR or other regulations but the intent is to encourage consistency. The intent of Table 1 is not to preclude engagement in an incident investigation of the responsible person with stakeholders such as road tanker fleet operators.

Table 1: Identity of responsible person to submit a RIDDOR report following a flammable fuel release during road tanker loading or unloading

Release location	Responsible person
Road tanker loading locations (e.g. bulk storage installations including terminals, depots, etc.)	Loading site operator
Road tanker unloading locations (e.g. depots, filling stations, airport tank farms, agricultural premises, etc.)	Unloading site operator
Any other location	Road tanker fleet operator

2.4 PROCESS FOR RESPONSIBLE PERSON TO DECIDE WHETHER TO SUBMIT A RIDDOR REPORT FOLLOWING A FLAMMABLE FUEL RELEASE DURING ROAD TANKER LOADING OR UNLOADING

Where a sudden, unintentional and uncontrolled release of a flammable fuel occurs and results in a consequence that is reportable under a category of RIDDOR other than dangerous occurrences (e.g. fatality, specified injury, over-seven-day incapacitation[1], etc.), the responsible person should report the incident to HSE on that basis. Otherwise, the responsible person should report the incident if it meets the dangerous occurrence reporting thresholds set out in RIDDOR Schedule 2, Part 2, Paragraph 26 and the guidance in HSE *RIDDOR* (see Annex A). However, where the incident does not meet either of those criteria, the responsible person should assess the potential for the incident to cause reportable injuries or harm to people, or to escalate, by considering factors set out in 2.5: if the potential is significant, the responsible person should report the incident as a dangerous occurrence.

Figure 1 summarises this process using a decision tree.

1 Reporting requirements for over-seven-day injury applies in GB, but has not yet been introduced in Northern Ireland where the over-three-day injury reporting requirement remains in place until revised regulations are introduced.

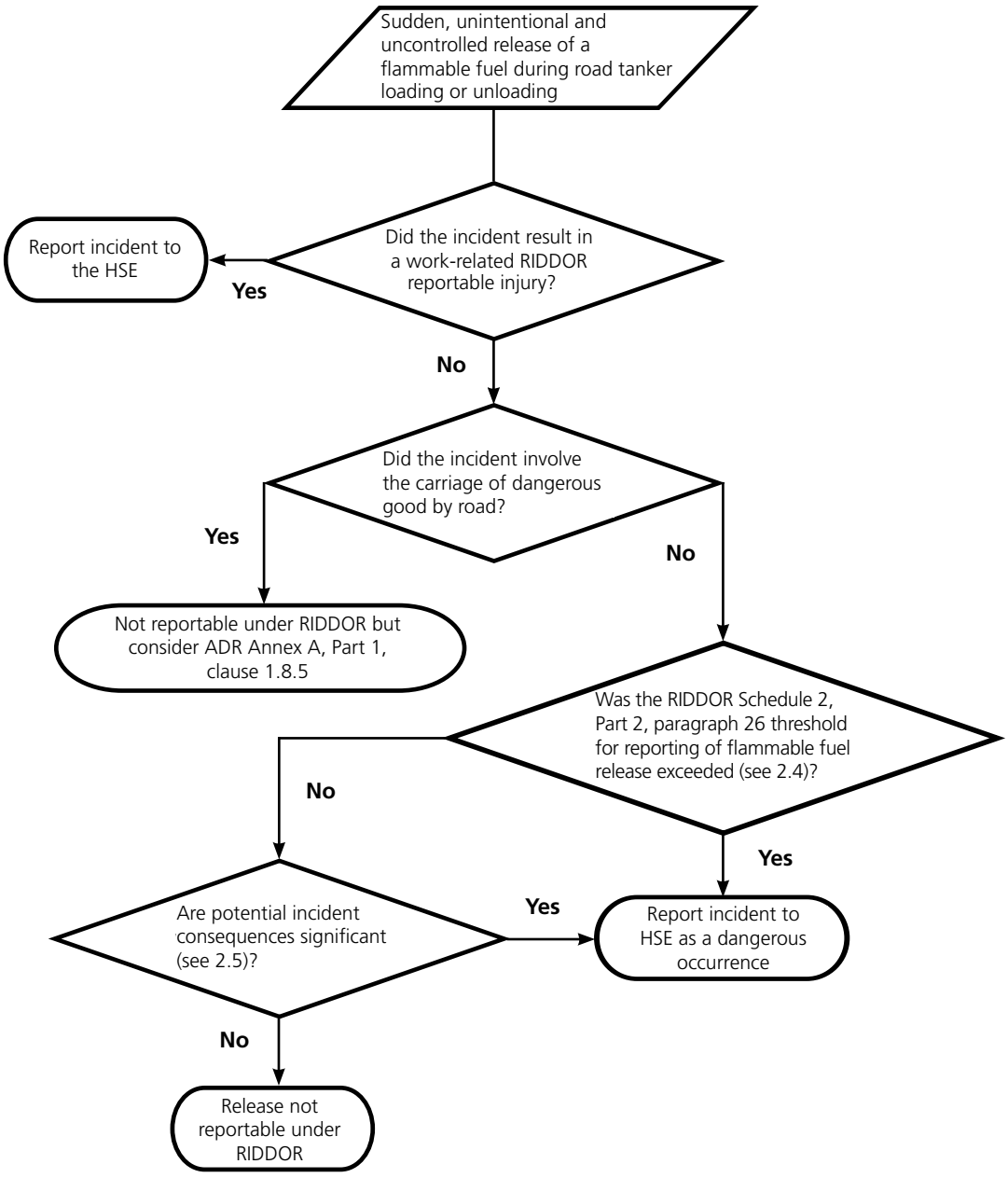

Figure 1: Decision tree summarising process for responsible person to decide whether to submit a RIDDOR report following a flammable fuel release during road tanker loading or unloading

2.5 FACTORS FOR RESPONSIBLE PERSON TO CONSIDER WHEN DECIDING WHETHER TO REPORT A DANGEROUS OCCURRENCE FOR INCIDENTS THAT DO NOT MEET RIDDOR REPORTING CRITERIA

There follows a set of factors for the responsible person to consider when deciding whether to report a dangerous occurrence for incidents that do not meet RIDDOR reporting criteria: if the potential consequences are significant, the incident should be reported as a dangerous occurrence. These factors are not drawn from RIDDOR or HSE *RIDDOR*, but are indicative of a sudden, unintentional and uncontrolled release of a flammable fuel with the potential for the incident to cause reportable injuries or harm to people, or to escalate. Note that the factors are not weighted with regard to their relative importance, and no guidance is provided as to whether a single factor or several factors would warrant a RIDDOR dangerous occurrence: the following factors should be considered on a case-by-case basis:

- Whether the flammable fuel was recovered (e.g. from a drainage system with an oil/water separator, or using catch-basin under a loading gantry).
- What was the level of compliance with operational procedures (e.g., were there any critical deviations from a road tanker loading procedure, such as too many loading hoses simultaneously connected, attaching bonding cable to road tanker, isolation of road tanker electrics, etc.)?
- Whether the impact of the flammable release extended off-site, and if so, as liquid, jet, vapour, mist or spray (e.g. from a retail filling station into a public area).
- Whether the incident had potentially more significant consequences (e.g. the release was fortuitously detected and promptly isolated).
- Whether the release of flammable fuel had potential to cause reportable injuries or harm to people, and if so, what number of people were potentially affected.
- Quantity of flammable fuel released (releases ≥500 kg in open air should be reported in any case – see 2.2) and worst case quantity of flammable fuel that potentially could have been released (e.g. a nominally full road tanker compartment).
- Likelihood of forming a flammable atmosphere: flammable fuel factors (e.g. flash point, etc.), physical parameters (e.g. form of release (liquid, jet, vapour, mist or spray), release height, etc.), and environmental factors (e.g. air and ground temperatures, wind speed, humidity, etc.).
- Location of incident, e.g. within building, open air (on hard standing with a drainage system leading to an oil/water separator to recover released flammable fuel, on open ground at unloading location, etc.).
- Whether an on- or off-site emergency plan was activated, possibly requiring attendance of an emergency response team or the public fire and rescue service to minimise the consequences of the release, or to prevent further release.
- Absence or presence of a potential source of ignition (e.g. in a hazardous area, public area, etc.).
- What immediate and root causes contributed to the incident (e.g. erroneous setting of metering system as operator had missed refresher training, rupture of a road tanker loading/unloading hose due to omitted maintenance, flammable fuel unloaded into wrong tank due to poor labelling, etc.).

ANNEX A
EXTRACTS FROM REGULATIONS AND GUIDANCE PERTINENT TO THE REPORTING OF DANGEROUS OCCURRENCES INVOLVING RELEASES OF FLAMMABLE FUELS UNDER RIDDOR

The relevant parts of RIDDOR are replicated to enable understanding of its reporting requirements. The guidance is replicated HSE *RIDDOR*.

A.1 EXTRACTS REPLICATED FROM RIDDOR 2013

Regulation 7
Dangerous occurrences
7. Where there is a dangerous occurrence, the responsible person must follow the reporting procedure, subject to regulations 14 and 15.

Schedule 2 Dangerous occurrences
Part 2 Dangerous occurrences reportable except in relation to an offshore workplace

Release of flammable liquids and gases
26. The sudden, unintentional and uncontrolled release—

(a) inside a building—
  (i) of 100 kilograms or more of a flammable liquid;
  (ii) of 10 kilograms or more of a flammable liquid at a temperature above its normal boiling point;
  (iii) of 10 kilograms or more of a flammable gas; or
(b) in the open air, of 500 kilograms or more of a flammable liquid or gas.

A.2 EXTRACTS REPLICATED FROM HSE *RIDDOR*

This definition (Schedule 2, Part 2, paragraph 26) covers releases of flammable liquids or gases (e.g. due to the sudden failure of a storage vessel, storage system, and substance transfer system or process) where the release, if ignited, would cause a major explosion or fire. 'Flammable' includes those substances classified as highly flammable or extremely flammable.

ANNEX B
REFERENCES

Health and Safety Executive (HSE) (http://www.hse.gov.uk)

RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013, http://www.hse.gov.uk/riddor (accessed 13 May 2014)

The National Archives (http://www.legislation.gov.uk)

Control of Major Accidents Hazards Regulations 1999 (COMAH) (SI 1999, No. 743).
Health and Safety at Work etc Act 1974(1974, c.37)
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) (SI 2013, No. 471).

United Nations Economic Commission for Europe (UNECE) (http://www.unece.org)

European Agreement concerning the International Carriage of Dangerous Goods by Road 2013 (ADR) (accessed 13 May 2014).

ANNEX C
GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CNG	compressed natural gas
COMAH	Control of Major Accidents Hazards Regulations
HSE	Health and Safety Executive
LPG	liquefied petroleum gas
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

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