



LONDON FIRE BRIGADE

FIRE SAFETY GUIDANCE NOTE

Risk Assessments for Petrol Filling Stations Required Under Fire Safety Legislation

Number:
GN75

The London Fire Commissioner (the Commissioner) is the fire and rescue authority for London. The Commissioner is responsible for enforcing parts of the Dangerous Substances and Explosive Atmospheres Regulations 2002 in London.

This Guidance Note provides information on the legislation relating to risk assessments for petrol filling stations.

This Note is one of a series produced by the Commissioner to provide advice on various aspects of fire safety. If you require any further guidance on the advice given or require advice on another topic please contact your local borough Fire and Community Safety Centre or visit our web site at <http://www.london-fire.gov.uk>

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1 INTRODUCTION

- 1.1 The Dangerous Substances and Explosive Atmospheres Regulations 2002 places the onus on the employer/responsible person to identify and assess the risks arising from the delivery, keeping and dispensing of petroleum spirit and other motor fuels (such as liquefied petroleum gas).

2 RELATED LEGISLATION

- The Petroleum (Consolidation) Regulations 2014
- The Health and Safety at Work Act etc 1974
- The Management of Health and Safety at Work Regulations 1999
- The Dangerous Substances and Explosive Atmospheres Regulations 2002
- The Regulatory Reform (Fire Safety) Order 2005

3 WHAT THE LEGISLATION REQUIRES

- 3.1 The employer / responsible person must:

- Find out what dangerous substances are present in their workplace/premises and what the fire and explosion risks are. (Petroleum spirit and LPG are both "dangerous substances" for this purpose, but there may be others at the premises. If so, they need to be considered as well.);
- Put control measures in place to either remove those risks or, where this is not possible, to control them;
- Put controls in place to reduce the effects of any incidents involving dangerous substances;
- Prepare plans and procedures to deal with accidents, incidents and emergencies involving dangerous substances;
- Make sure that employees are properly informed about and trained to control or deal with the risks from the dangerous substances. (This includes providing them with details of the substances and with a copy of the significant findings of the risk assessment.);
- Identify and classify areas of the workplace/premises where explosive atmospheres may occur and avoid ignition sources (for example from unprotected equipment) in those areas. Recording these areas is best done by way of a plan – see Appendix 3 for an example.;
- Carry out a risk assessment and make a record of the significant findings of that assessment, including the measures that have been or will be taken by the employer/responsible person to control the risk.
- Keep a record of the risk assessment and significant findings available for inspection;
- Review the risk assessment periodically and following any significant changes.

The requirement to assess the risks from the dangerous substances should not be considered in isolation. It should be carried out as part of the overall risk assessment required by Regulation 3 of the Management of Health and Safety at Work Regulations 1999 rather than a separate exercise.

- 3.2 Appendix 1, attached, is a suggested format that you may wish to consider as a method of recording the required information
- 3.3 Appendix 2 lists some of the control measures that may be necessary for each activity.

- 3.4 Appendix 3 details the hazardous zones associated with a petrol filling station forecourt, along with an example of the suggested drawing.
- 3.5 Following this guidance is not necessarily the only way to comply with the legislation, however, the advice offered here represents best practice.

4 BIBLIOGRAPHY

- 4.1 Detailed guidance on the various standards listed in the guidance note may be obtained from the following bibliography.

AVAILABLE FROM	TITLE
Energy Institute 61 New Cavendish Street London W1G 7AR Telephone: 020 7467 7100 Fax: 020 7255 1472 E-mail: info@energyinst.org.uk Web: www.energyinst.org.uk	Design, Construction, Modification, Maintenance and Decommissioning of Filling Stations
The Stationery Office (Mail, Telephone, Fax & Internet Orders) TSO Orders/Post Cash Dept PO Box 29 Norwich NR3 1GN Telephone: 08706005522 Web: www.tsoshop.co.uk	Fire safety in offices and shops ISBN-13: 978 1 85112 815 0 The Petroleum (Consolidation) Regulations 2014 The Health and Safety at Work etc. Act 1974 The Management of Health and Safety at Work Regulations 1999 The Dangerous Substances and Explosive Atmosphere Regulations 2002 The Regulatory Reform (Fire Safety) Order 2005
Petroleum Enforcement Liaison Group (PELG) Web: http://www.energyinst.org/technical/distribution-and-marketing/filling-stations/pelg	Petrol Filling Stations Guidance on Managing The Risk of Fire & Explosion (The Red Guide)
UKLPG Camden House Warwick Road	Code of Practice 1: Part 1 2009 Edition - Bulk LPG Storage at Fixed Installations : Design, Installation and Operation of Vessels Located Above Ground (January 2009)

<p>Kenilworth Warwickshire CV8 1TH</p> <p>Email: email@uklpg.org Web: www.uklpg.org</p>	<p>Code of Practice 1: Part 3 - Bulk LPG Storage at Fixed Installations: Examination and Inspection (2012)</p> <p>Code of Practice 1: Part 4 - Bulk LPG Storage at Fixed Installations: Buried/Mounded LPG Storage Vessels (February 2008)</p> <p>Code of Practice 11 - Autogas Installations (June 2001) incorporating Amendment 3, 2003</p> <p>Code of Practice 20 - Automotive LPG Refuelling Facilities (November 2001) incorporating Amendment 1 2004</p> <p>Code of Practice 22 - Design, Installation and Testing of LPG Piping Systems : 2011</p>
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The above publications are current at the time of preparation of this Guidance Note (see date at foot of last page) .

The "Fire Safety" guide listed above may also be downloaded free of charge from the Fire Safety Law Section of the CLG website at: <http://www.communities.gov.uk/fire/firesafety/firesafetylaw/>.

ACTIVITY	RISK/HAZARD ASSOCIATED WITH ACTIVITY	EXISTING CONTROL MEASURES		SIGNIFICANT FINDINGS (i.e. is a risk not adequately controlled?)		ANY ACTION REQUIRED (BY WHOM) (TIME SCALE)
		ENGINEERED	MANAGED	YES	NO	
Tanker unloading	<ul style="list-style-type: none"> • Overfill/ crossover • Impact • Actions by unauthorised personnel • Spillage • Uncontrolled vapour release • Fire/explosion caused by ignition of vapour following uncontrolled release of product • Leak • Ignition sources 	3A	4A			
Storage of fuel on site	<ul style="list-style-type: none"> • Leak • Uncontrolled vapour release • Fire/explosion caused by ignition of vapour following uncontrolled release of product 	3B	4B			
Dispensing of fuel by members of public	<ul style="list-style-type: none"> • Leak • Spillage • Fire/explosion caused by ignition of vapour following uncontrolled release of product • Vehicular impact • Vapour release • Equipment failure • Ignition sources • Members of public 	3C	4C			
Carrying out repair, maintenance or modification	<ul style="list-style-type: none"> • Ignition sources • Leaks • Spillage • Unauthorised personnel • Vapour release • Fire/explosion caused by ignition of vapour following uncontrolled release of product • Impacts 	3D	4D			
Regulatory Reform (Fire Safety) Order 2005: Consideration of staff and public within associated premises (or who may be affected as a result of a fire at the premises)	<ul style="list-style-type: none"> • Fire/explosion caused by ignition of vapour following uncontrolled release of product • Fire caused by ignition of combustible materials. 	3E	4E			

LIST OF POSSIBLE CONTROL MEASURES FOR
INCLUSION WITHIN CELLS ON RISK ASSESSMENT FORM

CELL 3A

1. Overfill prevention/high level alarm
2. Correct labelling of fill points/signage
3. Stage 1b vapour recovery
4. Vent pipe location
5. Location/protection of fill pipes (tanker stand)
6. Impervious surface to tanker stand
7. Drainage of tanker stand/tank fill point area to a retention system.
8. Driver controlled delivery equipment
9. Adequate lighting
10. Hazardous area classification / suitability of equipment
11. Provision of fire fighting equipment & absorbent material

CELL 4A

1. Inspection / maintenance regime
2. Staff training
3. Delivery documentation
4. Provision of personal protective equipment
5. Implemented emergency procedure

CELL 3B

1. Secondary containment
2. Leak detection system
3. Observation / monitoring well(s)
4. Stage 1b vapour recovery
5. Gauge systems
6. Automated reconciliation system
7. Cathodic protection
8. Provision of fire fighting equipment and absorbent material

CELL 4B

1. Staff training
2. Third party statistical inventory reconciliation
3. Wetstock reconciliation
4. Inspection / maintenance regime and records of same
5. Provision of personal protective equipment

CELL 3C

1. Dispensers to approved standard
2. Dispensers operating a stage II vapour recovery system
3. Labelling / signage
4. Adequate lighting
5. Impact check valves (pressurised pumping / lpg)

6. Position of dispenser(s) (vision / impact)
7. Isolation / emergency switches
8. Impact protection of dispenser(s)
9. Under pump valves (suction)
10. Loud speaker system
11. Impervious forecourt surface
12. Drainage of dispensing area to a retention system
13. Electrical equipment suitable for hazardous zone
14. Provision of fire fighting equipment and absorbent material

CELL 4C

1. Staff training
2. Inspection / maintenance regime
3. Provision of personal protective equipment for staff
4. Provision of first aid kit and first aid training
5. Implemented emergency procedure

CELL 3D

1. Correct equipment to be used in hazardous areas
2. Provision of suitable lifting equipment available for access chamber covers
3. Provision of fire fighting equipment and absorbent material
4. Provision of cones and barriers
5. Adequate lighting of working area

CELL 4D

1. Competent contractors / safety passport
2. Staff training
3. Provision personal protective equipment
4. Emergency plan
5. Contractors documentation:
 - clearance certificates
 - method statement
 - risk assessment
6. Visitors book

CELL 3E (Regulatory Reform (Fire Safety) Order 2005)

1. Suitable and sufficient means of escape
2. Suitable and sufficient provision of fire fighting equipment
3. Fire alarms and detection
4. Fire resisting separation

CELL 4E (Regulatory Reform (Fire Safety) Order 2005)

1. Staff training
2. Maintenance of fire fighting equipment / alarms / separation
3. Emergency plan
4. Risk Assessment
5. Competent persons

For further information on the Regulatory Reform (Fire Safety) Order 2005 visit our website:

<http://www.london-fire.gov.uk/RegulatoryReformOrder2005.asp>

HAZARDOUS ZONE DEFINITIONS:-

Zone 0: That part of a hazardous area in which a flammable atmosphere is continuously present or present for long periods or for more than 1,000 hours per annum

Zone 1: That part of a hazardous area in which a flammable atmosphere is likely to occur in normal operation or for between 10 and 1,000 hours per annum.

Zone 2: That part of a hazardous area in which a flammable atmosphere is not likely to occur in normal operation and, if it occurs, will exist only for a short period or for between 0.1 and 10 hours per annum.

NOMINAL AREAS OF HAZARDOUS ZONES TO BE INDICATED ON THE HAZARDOUS ZONE DRAWING:-**Zone 0:** 

- Within any access chamber or pit in which there are tanker delivery hose connection point(s).
- Within an oil separator (petrol interceptor).

Zone 1: 

- 1m radius around the road tanker delivery and vapour return hose connections extending down to ground level.
- 1m radius along the delivery hose route from the tanker connection point(s) to the tank connection point(s).
- 1m radius from a tank fill point (above ground)
- 1m radius from the edge of the chamber if fill point is below ground.
- Within petrol tank access chambers which do not have tank fill points.
- 2m radius around tank venting point(s) which do not have a stage 1b vapour recovery system.
- 1m radius around a venting point of an oil separator (petrol interceptor).
- Within the access chamber of an oil separator (petrol interceptor).
- Within a 4.1m radius of a petrol delivery hose connection on a dispenser (without stage 2 vapour recovery).

Zone 2: 

- 4m radius of tanker delivery hose connection point(s).
- 4m radius of above ground off set fill connection(s).
- 1 m radius around vapour return hose connection point.
- 2m radius around tank venting points where the site has stage 1b vapour recovery installed.
- 2m radius from the edge of an oil separator (petrol interceptor) access chamber.
- Within a 4.1m radius of a petrol delivery hose connection on a dispenser (with stage 2 vapour recovery in operation).

Note: additional hazardous zones are present and must be identified on sites where LPG or other highly flammable motor fuels are stored and dispensed.

EXAMPLE OF HAZARDOUS ZONE DRAWING FOR A TYPICAL PETROL FILLING STATION

