

Fire Safety Guidance Note: GN75 Risk Assessments for Petrol Dispensing Premises under Dangerous Substances and Explosive Atmospheres Regulations 2002

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Explanatory Note:

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 dispensing premises and 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 visit your local Fire Safety Office, telephone 020 8555 1200 and ask for the nearest Fire Safety Office, or visit the London Fire Brigade web site at <http://www.london-fire.gov.uk>.

1. Introduction

- 1.1 This document has been prepared by the Fire Safety Regulation Department, London Fire Brigade (LFB).
- 1.2 The purpose of this Guidance Note is to provide information to petroleum dispensing premises owners / occupiers on the risks arising from the delivery, storage and dispensing of petroleum. This information should be used to inform and review Risk Assessments and the management of risk from dangerous substances.
- 1.3 The Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) 2002 is the legislation which deals with the safe working of dangerous substances and explosive atmospheres. DSEAR requires employers to control the risks to safety from fire, explosions and substances corrosive to metals. Dangerous substances are any substances used or present at work that could, if not properly controlled, cause harm to people as a result of a fire or explosion or corrosion of metal.
- 1.4 In addition, DSEAR places the responsibility 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 Regulatory Reform (Fire Safety) Order 2005 (*Please see Guidance Note 66 'Regulatory Reform (Fire Safety) Order 2005' for further information*)

3. What the Legislation (DSEAR 2002) 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.)

- 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. - **Regulation 5, DSEAR (2002).**
- 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 2 for an example; - **Regulation 6, DSEAR (2002)**
- 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. – **Regulation 7, DSEAR (2002)**
- Prepare plans and procedures to deal with accidents, incidents and emergencies involving dangerous substances; - **Regulation 8, DSEAR (2002)**
- 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.) - **Regulation 9, DSEAR (2002).**

3.2 The Health & Safety Executive's [Approved Code of Practice No. L138](http://www.hse.gov.uk/pubns/books/l138.htm) provides additional detailed guidance for the employer/responsible person:
<http://www.hse.gov.uk/pubns/books/l138.htm>

3.3 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 as a separate exercise.

Appendix 1

3.4 Appendix 1 is a suggested format that you may wish to consider as a method of recording the required information and also lists some of the control measures that may be necessary for each activity.

Appendix 2

3.5 Appendix 2 details the hazardous zones associated with a petrol filling station forecourt, along with an example of the suggested drawing.

Following this guidance is not necessarily the only way to comply with the legislation, however, the advice offered here represents best practice.

4. Bibliography

Detailed guidance on the various standards referred to in this guidance note may be obtained from the following bibliography. You can also obtain fire safety advice on other subjects by visiting the London Fire Brigade's website at www.london-fire.gov.uk.

The publications can be obtained from the following addresses:-

AVAILABLE FROM	TITLE
<p>Energy Institute</p> <p>61 New Cavendish Street London W1G 7AR</p> <p>Telephone: 020 7467 7100 Fax: 020 7255 1472 E-mail: info@energyinst.org Web: www.energyinst.org</p>	<p>Design, Construction, Modification, Maintenance and Decommissioning of Filling Stations (The Blue Book)</p>
<p>The Stationery Office (Mail, Telephone, Fax & Internet Orders)</p> <p>TSO Orders/Post Cash Dept PO Box 29 Norwich NR3 1GN</p> <p>Telephone: 08706 005 522 Web: www.tsoshop.co.uk</p>	<p>Fire safety in offices and shops</p> <p>ISBN-13: 978 1 85112 815 0</p>
<p>Related Legislation</p> <p>http://www.legislation.gov.uk/</p>	<p>The Petroleum (Consolidation) Regulations 2014</p> <p>The Health and Safety at Work etc. Act 1974</p> <p>The Management of Health and Safety at Work Regulations 1999</p> <p>The Dangerous Substances and Explosive Atmosphere Regulations 2002</p> <p>The Regulatory Reform (Fire Safety) Order 2005</p>
<p>Petroleum Enforcement Liaison Group (PELG)</p> <p>Web: https://publishing.energyinst.org/topics/petroleum-product-storage-and-distribution/filling-stations/petrol-filling-stations-guidance-on-managing-the-risks-of-fire-and-explosion-the-red-guide</p>	<p>Petrol Filling Stations Guidance on Managing The Risk of Fire & Explosion (The Red Guide)</p>
<p>Liquid Gas UK</p> <p>Camden House Warwick Road Kenilworth Warwickshire CV8 1TH</p>	<p>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> <p>Code of Practice 1: Part 3 - Bulk LPG Storage at Fixed Installations:</p>

Web: www.liquidgasuk.org	Examination and Inspection (2012) Code of Practice 1: Part 4 - Bulk LPG Storage at Fixed Installations: Buried/Mounded LPG Storage Vessels (February 2008) Code of Practice 11 - Autogas Installations (June 2001) incorporating Amendment 3, 2003 Code of Practice 20 - Automotive LPG Refuelling Facilities (November 2001) incorporating Amendment 1 2004 Code of Practice 22 - Design, Installation and Testing of LPG Piping Systems : 2011
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The above publications are current at the time of preparation of this Guidance Note (see date in footer).

The "Fire Safety" guide listed above may also be downloaded free of charge from the [Fire Safety Law Section](#) of the CLG website.

Appendix 1

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	
Tank 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 	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	1. Inspection / maintenance regime 2. Staff training 3. Delivery documentation 4. Provision of personal protective equipment 5. Implemented emergency procedure			
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 	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	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			
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 	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	1. Competent contractors / safety passport 2. Staff training 3. Provision personal protective equipment 4. Emergency plan 5. Contractors documentation: <ul style="list-style-type: none"> • clearance certificates • method statement • risk assessment 6. Visitors book			

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	
Dispensing of fuel by members of the 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 	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	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			
Regulatory Reform Order (fire Safety) Order 2005	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)	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	1. Staff training 2. Maintenance of fire fighting equipment / alarms / separation 3. Emergency plan 4. Risk Assessment 5. Competent persons			

Appendix 2

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:

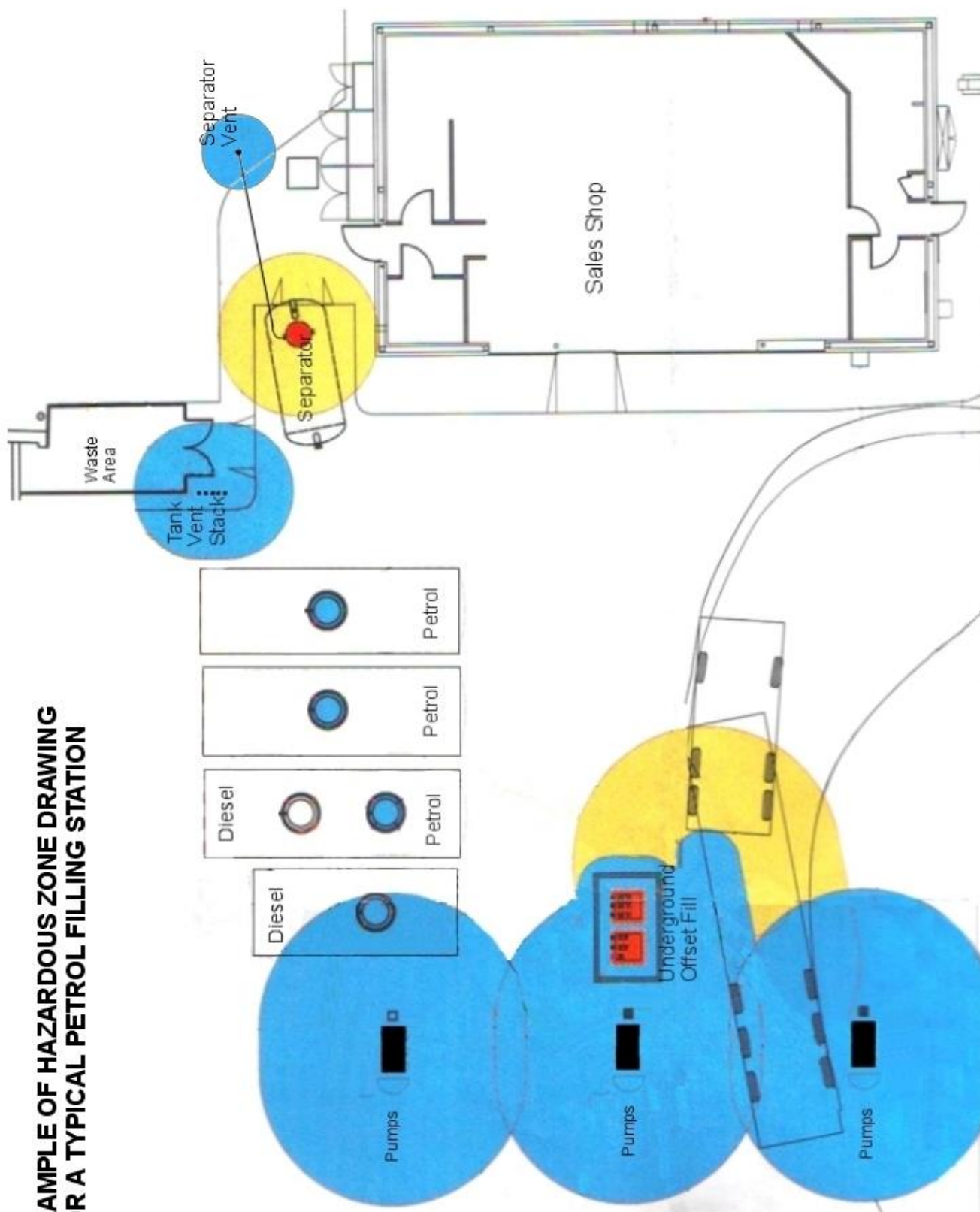
- 1m radius around the road tanker delivery and vapour return hose connections extending down to ground level.
- 1m radius along the delivery hose route from the tanker connection point(s) to the tank connection point(s).
- 1m radius from a tank fill point (above ground)
- 1m radius from the edge of 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 dispense

EXAMPLE OF HAZARDOUS ZONE DRAWING FOR A TYPICAL PETROL FILLING STATION



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