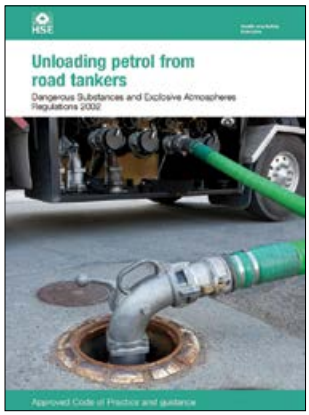
HSE

Health and Safety Executive

Unloading petrol from road tankers

Dangerous Substances and Explosive Atmospheres Regulations 2002

Approved Code of Practice and guidance



This Approved Code of Practice (ACOP) and guidance is for those people who are involved in the delivery and unloading of petrol at filling stations, including petrol station site operators, road tanker operators, road tanker drivers and the authorities who have responsibility for enforcement of the Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) at petrol filling stations.

It emphasises the importance of the risk assessment and the roles and responsibilities of the various parties involved.

This second edition brings the document up to date with regulatory and other changes. The guidance has been simplified to clarify what is already required in law by DSEAR in relation to petrol unloading operations. Specific guidance on working at height has been removed as this is not a requirement of DSEAR.

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New ACOP text has been added to ensure employers have in place, and maintain, systems to contact the emergency services.

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Approved Code of Practice

This Code has been approved by the Health and Safety Executive, with the consent of the Secretary of State. It gives practical advice on how to comply with the law. If you follow the advice you will be doing enough to comply with the law in respect of those specific matters on which the Code gives advice. You may use alternative methods to those set out in the Code in order to comply with the law.

However, the Code has a special legal status. If you are prosecuted for breach of health and safety law, and it is proved that you did not follow the relevant provisions of the Code, you will need to show that you have complied with the law in some other way or a Court will find you at fault.

Guidance

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory, unless specifically stated, and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance.

Contents

Introduction

1 This Approved Code of Practice (ACOP) gives practical guidance on the application of the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR)[1] regarding the safe unloading of petrol from road tankers. While this ACOP covers the unloading of petrol at petrol filling stations subject to the Petroleum (Consolidation) Regulations 2014[2] it can also be applied to other petrol dispensing facilities.

2 This second edition has been drawn up in consultation with a working group comprising representatives of the petrol station site operators, road tanker operators, road tanker drivers and their respective trade unions, as well as the authorities who have responsibility for enforcement of DSEAR at petrol filling stations.

3 The ACOP addresses the safety aspects in relation to fire and explosion of unloading petrol from road tankers, and will be taken into account by those authorities who have enforcement responsibility under the Petroleum (Consolidation) Regulations 2014.

4 The ACOP does not address control of effects on health, or other aspects of safety such as working at height.

5 In respect of the potential health effects of petrol, the Control of Substances Hazardous to Health Regulations 2002 (COSHH) will apply. For further guidance on COSHH, see the related ACOP.[3] For guidance on safe working at height, see HSE's website (www.hse.gov.uk/work-at-height).

6 Any spill or loss of product also poses a threat to the environment and the potential for environmental harm should be considered. Further guidance on the relevant legislation and pollution prevention advice can be found on the websites of the following organisations:

(a) Environment Agency for England (www.gov.uk/environment-agency);
(b) Natural Resources Body for Wales (naturalresourceswales.gov.uk);
(c) Scottish Environment Protection Agency for Scotland (www.sepa.org.uk).

7 Additional requirements to those in this ACOP apply at petrol filling stations and other premises containing such facilities, which are subject to the Control of Major Accident Hazards Regulations 1999 (COMAH). For advice on the COMAH Regulations see www.hse.gov.uk/comah.

8 The guidance does not cover the unloading of liquefied petroleum gas (LPG), compressed natural gas (CNG), liquefied natural gas (LNG) or hydrogen. However, although this ACOP relates to petrol, its basic principles can be applied to the unloading of diesel fuel from road tankers at petrol filling stations.

9 While the focus of this ACOP is on the unloading of petrol, the general principles concerning the carriage, loading and unloading of dangerous substances

still apply. In addition to DSEAR, road tanker operators will also need to comply with the relevant requirements of the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG)[4] and the European Agreement concerning the International Carriage of Goods by Road (ADR),[5] which together regulate the carriage of dangerous goods by road.

10 The main aim of this ACOP is to provide guidance that will help petrol station site operators, road tanker operators and road tanker drivers:

(a) prevent the overfilling of the receiving storage tank during the unloading of a petrol tanker;
(b) have procedures in place to deal safely with the situation should overfilling occur;
(c) prevent and deal with any spillages during the unloading operation;
(d) control potential sources of ignition that might present a risk of causing a fire or explosion while the petrol is being unloaded;
(e) ensure the safe delivery of petrol and safe tanker movement at petrol filling stations, including in poor weather conditions.

11 DSEAR provides the overall legal framework for the prevention of fires and explosions arising from the storage and use of dangerous substances. Operators of petrol filling stations and those responsible for the delivery of the petrol should also consult *Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance,*[1] which is the main guidance document in relation to DSEAR.

12 The leaflet *Controlling fire and explosion risks in the workplace*[6] provides a short guide to DSEAR and is aimed at small and medium-sized businesses. Information on DSEAR can also be found on HSE's website (www.hse.gov.uk/fireandexplosion/dsear.htm). The Petroleum Enforcement Liaison Group (PELG) provides supplementary advice in *Petrol filling stations guidance on managing the risks of fire and explosion* (also known as the Red Guide).[7] In addition, HSE's *The storage of flammable liquids in tanks* also provides relevant guidance.[8]

About ACOPs

13 Approved Codes of Practice (ACOPs) are approved by the HSE Board with the consent of the Secretary of State (see Appendix 1: Notice of Approval for details).

14 The ACOP describes preferred or recommended methods that can be used (or standards to be met) to comply with the Regulations and the duties imposed by the Health and Safety at Work etc Act 1974 (the HSW Act). The accompanying guidance also provides advice on achieving compliance, or it may give information of a general nature, including explanation of the requirements of the law, more specific technical information or references to further sources of information.

15 The legal status of ACOP and guidance text is given on page 2.

Presentation

16 The ACOP text is set out in **bold** and the accompanying guidance is in normal type.

17 Where this document refers to legislation, the reference is to that legislation currently in force, which may have been amended from time to time.

Terms used in the ACOP

18 The following terms are used in this ACOP and are explained as follows:

(a) 'Gross capacity of the tank' is the total volume of the tank as provided by the tank manufacturer.

(b) The 'maximum working capacity' (MWC) is less than the gross capacity of the tank.
   (i) It is the maximum volume of petrol that can be safely contained in the tank allowing for thermal expansion and when road tanker unloading is taking place, time to respond to an emergency situation such as an overfill alarm, and the drainage of the pipework and hose from the shut-off valve into the tank. The MWC will vary dependent on the tank size and whether the tank is below or above ground. Every tank should be labelled to show its maximum working capacity.
   (ii) Further details on determining the MWC for petrol storage tanks are given in the Energy Institute Service Station Panel Guide *Design and operating limits for fuel storage tanks at retail filling stations.*[9]

(c) 'Road tanker operator' means:
   (i) the employer, including a self-employed person, who, having a place of business in Great Britain, has the management of the tanker for the time being; or
   (ii) if no person satisfies the requirements of sub-paragraph (c)(i), the tanker driver.

(d) 'Site operator' means the employer, including a self-employed person, who controls the operation of a site where petrol is to be unloaded. It includes, in the context of this Code, any competent person appointed by the site operator to act on their behalf, eg an employee. It is the responsibility of the site operator to ensure that anyone appointed to act on their behalf has the necessary competence to perform the activity safely.

(e) 'Petrol' means petroleum or a mixture of petroleum with one or more substances which:
   (i) is liquid or viscous at a temperature of 15 °C and a pressure of 101.325 kPa (1013.25 mb);
   (ii) when tested in accordance with Part A.9 of the Annex to Regulation (EC) No 440/2008, has a flashpoint (as defined in that Part) of less than 21 °C.

(f) 'Ullage' means the difference between the maximum working capacity of a storage tank and the quantity of petrol in it at any given time.

(g) 'Overfill' is liquid fill in excess of the maximum working capacity of the storage tank.

(h) 'Hazardous area classification' (HAC) is used to identify places where, because of the potential for an explosive atmosphere, special precautions over sources of ignition are needed to prevent fires and explosion.

(i) 'Assisted delivery' is where the site operator is present for the duration of the delivery to assist the tanker driver as needed.

(j) 'Unassisted delivery' (also known as 'driver-controlled delivery') is a delivery which takes place when the site operator is not present. It is entirely controlled by the tanker driver throughout the delivery with no site operator assistance.

Tanker unloading: General duties

Guidance

19 Equipment and facilities used for the unloading of petrol should be of appropriate design, suitable for the purpose and correctly maintained, to minimise the risk of an incident involving petrol.

20 In addition, the Management of Health and Safety at Work Regulations 1999 (the Management Regulations)[10] require employers and self-employed people to:

(a) make a suitable and sufficient assessment of the risks to the health and safety of their employees and any other people who may be affected by their activities;
(b) implement the general principles of prevention (as specified in Schedule 1 to the Management Regulations);
(c) have suitable management systems in place;
(d) cooperate/coordinate with others where there are shared responsibilities.

21 Lone working is another factor road tanker operators should in all cases, as part of the risk assessment required under DSEAR, take account of tanker drivers making unassisted deliveries to filling stations. Guidance on the responsibilities of employers in relation to lone workers is available in the HSE leaflet *Working alone*.[11]

22 As required by regulation 9 of DSEAR (see the ACOP),[1] site operators have a duty to ensure that forecourt staff assigned to assist with petrol deliveries are properly trained. Such staff should:

(a) be aware of the legal requirements in relation to health and safety during such deliveries;
(b) be familiar with the processes involved in the delivery of petrol;
(c) understand the site emergency procedures and have the necessary skills and expertise to understand and carry out the functions expected of them in the event of a site emergency;
(d) know the process for contacting the emergency services in the event of an incident. For further information, see the Energy Institute publication *Guidelines for an emergency action plan for fire and explosion risks at filling stations*.[12]

Risk assessment

Guidance

23 DSEAR requires the elimination and reduction of risks to as low as reasonably practicable (ALARP) from fires and explosions caused by the transport, storage and use of dangerous substances such as petrol. Detailed guidance on the principles of ALARP can be found on the HSE website at www.hse.gov.uk/risk/theory/alarp.htm. Employers, and the self-employed, are required to carry out a risk assessment of any such activities that may cause harm to people in the event of a fire and explosion, or similar event.

ACOP

24 The risk assessment, which must be carried out in accordance with DSEAR, should take into account any control measures already in place and include an assessment of the potential for the formation of an explosive atmosphere including hazardous area classification (HAC).

Guidance

25 Since there is interaction between the risk assessment carried out by each party, it is recommended that both the road tanker operator and site operator work together to develop a single, agreed risk assessment for unloading petrol on the site. However, ultimately the risk assessment for the site is the responsibility of the site operator.

26 Having carried out the risk assessment, there may be immediate factors causing the tanker driver to implement control measures in addition to those set out in the risk assessment. In such cases, the risk assessment may need to be modified in consultation with the site operator who, having responsibility for it, may need to adapt it to those changing circumstances.

ACOP

27 Site operators and tanker driver operators must consult employees and/or their representatives on the outcome and findings of the risk assessment. This is in line with the Management Regulations,[10] the Health and Safety (Consultation with Employees) Regulations 1996 and the Safety Representatives and Safety Committees Regulations 1977,[13] and regulation 9 of DSEAR.[1] Information on the HAC as determined by your risk assessment for the petrol filling station, including that applicable during petrol tanker unloading, should be made available to tanker drivers.

Guidance

28 Where the tanker driver identifies issues that may impact on the risk assessment, these should be reported to the road tanker operator, who should visit the site, assess the risks involved and agree the precautions with the site operator.

29 Examples of issues requiring further consideration may include:

(a) required careful positioning of a tanker;
(b) limited available space for movement of a tanker on site;
(c) location of a site, for example near vulnerable populations;
(d) members of the public engaged in other potentially hazardous activities.

Guidance

30 The risk assessment process needs to be practical. Seeking the views of employees and their health and safety representatives, who will have practical knowledge to contribute, will help to ensure all relevant information is taken into account.

31 Tanker drivers should notify site operators of any defects encountered at the site during petrol delivery and provide a record of these to the road tanker operator. Ongoing and unresolved issues should be reported by the tanker driver to the road tanker operator, who should raise the issue with the relevant enforcing authority.

32 The information on the HAC should fulfil the requirements set out in the DSEAR ACOP.[1] The information should be presented in the appropriate format, for example with a diagram as part of a risk assessment, or in electronic format.

33 Further detailed guidance on risk assessments is provided in the DSEAR ACOP,[1] the Association for Petroleum and Explosives Administration (APEA) and Energy Institute (EI) guidance document *Guidance for design, construction, modification, maintenance and decommissioning of filling stations* (also known as the Blue Book)[14] and the Red Guide.[7]

ACOP

34 Where an explosive atmosphere can form, and two or more employers share the same workplace, regulation 11 of DSEAR states that the employer responsible for the workplace should coordinate the implementation of control and mitigation measures required under DSEAR.

Guidance

35 In relation to petrol tanker unloading, the site operator should coordinate the implementation of control measures with the road tanker operator. In turn, the road tanker operator should cooperate with the site operator in the implementation of control and mitigation measures to ensure the safe unloading of petrol at the site.

ACOP

36 The site operator must cooperate with the road tanker operator in his or her duties to carry out a HAC for the road tanker unloading process.

Guidance

37 The site operator and road tanker operator should determine where potential sources of ignition need to be controlled, including the need for suitable earthing to prevent static discharges. This will require the identification and classification of the hazardous areas at the tanker stand and fill pipes. If hazardous zones from unloading extend to the dispensing areas, then the site, or parts of the site, will need to be closed during petrol deliveries.

38 The site operator should review the HAC if they are informed by the road tanker operator of a change in the design or operation of the road tanker making deliveries to the site.

39 The site operator must provide the road tanker operator with adequate information of any changes to the design and operation of the petrol filling station that affect the HAC.

Overfills and spillages

ACOP

40 As part of the site operator's duties under regulation 8 of DSEAR, the following provisions should be made. Where other fuels are stored and dispensed on the site, these should be taken account of in the risk assessment together with the actions taken to comply with the duties under regulation 8. Employers should ensure that foreseeable accidents, incidents and emergencies are identified, and that appropriate emergency arrangements are taken to ensure the safety of employees and others present at the site.

Guidance

41 Road tanker operators and site operators should develop emergency procedures that can be implemented in the event of storage tank overfill and spillages that may potentially occur during the unloading of petrol from road tankers. There should be coordination between the road tanker operator and site operator in the development of these procedures. The tanker driver and site personnel who will be responsible for implementing these procedures should be given appropriate information, instruction and training in this.

42 Further guidance on emergency procedures is given in the Red Guide.[7] It is also recommended that the development of the emergency procedures for unignited spills is informed by the EI publication *Guidelines for an emergency action plan for fire and explosion risks at filling stations*[12] and PELG's *Guidance on the notification of petroleum spills.*[15] General guidance on arrangements to deal with emergencies is available in the DSEAR ACOP,[1] the leaflet *Controlling fire and explosion risks in the workplace*,[6] and on HSE's website at www.hse.gov.uk/fireandexplosion/dsear.htm.

43 Petrol spills can be separated into the following categories:

Residual

(a) Expected as part of the normal delivery process.
(b) Negligible spills/drips.

Manageable

(a) Small/medium spill retained on site and easily dealt with by site staff.
(b) There may be a requirement to close and/or evacuate part of the site in order to manage the spill.
(c) Spill goes to site drainage/separator.

Unmanageable

(a) Large spill.
(b) Will require full or partial site closure and evacuation.
(c) May require attendance of emergency services and/or specialist contractor(s).

44 For ignited spills, priority should be given to calling the emergency services, evacuating people from the premises to a safe distance from the incident, and notifying neighbouring properties as appropriate.

Responsibilities of the road tanker operator

ACOP

45 Road tankers used for the delivery of petrol must be provided with a means of shutting off all the foot valves in an emergency.

46 Where petrol is to be delivered using a pump, the pump and its associated equipment must be suitable for the purpose, properly installed and maintained in accordance with the manufacturer's instructions.

47 Road tanker operators should have emergency arrangements to deal with overfills and spillages that may potentially occur during petrol delivery. These emergency arrangements should be coordinated with the site operator (see paragraphs 100 and 101). Tanker drivers should be trained in the emergency arrangements and their coordination with those of the site operator.

48 Road tanker operators must cooperate with the site operator in the site operator's duties to carry out a HAC for the road tanker unloading process.

49 Road tanker operators must provide the site operator with adequate information of any changes to the design and operation of any road tanker delivering to the site which would affect the HAC.

50 Where an unassisted delivery of petrol is to be made to a site, the road tanker operator must ensure that the site operator has provided all the storage tanks with a suitable and effective means of preventing an overfill.

Guidance

Communications between site operators and road tanker drivers

51 Means should be provided to enable safe communications during journeys between the tanker driver, road tanker operator and site operator, for example by cab phone. Effective communications may contribute to controlling the risks associated with the unloading of petrol at the filling station, for example by allowing the driver to notify the site of arrival time. Similarly, this will enable the site operator to notify the road tanker operator of potential problems with tanker access.

Responsibilities of the site operator

ACOP

52 Site operators must have procedures to prepare for petrol deliveries that cover the process from start to finish and ensure that site staff activate these procedures as soon as the petrol tanker arrives on site. These procedures should include the provision of safe means of entry and exit for road tankers, and suitable protection for drivers during deliveries, eg warning signs to alert members of the public that a petrol delivery is in progress.

Guidance

53 In most cases, no more than one tanker should be on site at one time. The exception may be large sites, eg motorway service stations where a risk assessment has been carried out and measures are in place for it to be safe for more than one tanker to be on site, taking into account the different hazardous properties of different fuel types.

ACOP

54 Every storage tank and each storage tank compartment must have a suitable means of measuring the quantity of fuel inside it.

Guidance

55 The measuring device should have been tested and calibrated at the time of installation to ensure accuracy, and should be maintained in accordance with the manufacturer's instructions. Each device, including any dipstick, should be marked with the identity of the tank and tank compartment for which it is calibrated.

56 Where manual dipping is used to measure the tank contents, each tank and tank compartment should have its own dedicated calibrated dipstick, which is not to be used for other tanks or tank compartments.

57 Where conversion of imperial measurements to metric is required, eg due to the age of the tank, to avoid confusion that may result in increased risk of overfilling the storage tank, it is advisable for the measuring device to be calibrated in litres or with dual markings.

ACOP

58 Any opening for a dipstick in a storage tank should be kept closed and secured at all times, when it is not being actively used. Dipsticks located in fill pipes should be removed before petrol is delivered.

Guidance

59 An opening for a dipstick may release petrol vapour into the atmosphere. This creates a fire and explosion hazard in the immediate area, so such openings should be closed and secured when not in use, particularly during petrol delivery.

60 If the dipstick is left in the fill pipe when the tank is being filled, the momentum of the flow of petrol can cause the dipstick to rotate and bounce. This phenomenon has been known to cause penetrative damage to the striker plate at the base of the fill pipe where a metallic (brass) dipstick is in use or wear to the tip of a non-metallic dipstick. In the latter case, this can result in inaccurate measurements understating the ullage capacity of the tank.

61 Where a tank is filled from an offset fill, measurement of the tank contents should only be made by a contents gauge. A dipstick should not be used and all

Guidance

openings to the tank lid should be secure, and liquid and vapour tight to avoid any overfilling or venting of the tank in the tank manhole.

ACOP

Ullage

62 Accurate and legible information about the available ullage at the time of delivery of each storage tank at the site must be given to any tanker driver who is to unload petrol there.

Guidance

63 The ullage figure given to the tanker driver should always be a quantity that the tank can safely receive.

64 The ullage information provided for the tanker driver should be in writing. The information contained in the form at Appendix 2 is the minimum that should be provided. The form is strongly recommended for this purpose, but alternative formats giving equivalent information are acceptable. As necessary, these should be agreed between the site operator and the road tanker operator.

65 Before petrol is unloaded from a tanker into a storage tank, the site operator should ensure there is enough ullage space in the tank to take the quantity being delivered – this is to prevent the tank being overfilled and the risk of spillage. Where there is insufficient ullage space, the tanker driver should not attempt the delivery.

66 Where the site operator assists the tanker driver to unload, the ullage space should be measured before unloading takes place. The measurement should be recorded and the site operator and tanker driver should agree that the ullage space is adequate to take the load. If more than one tank is to be filled, particular care should be taken to identify the separate tanks, ullage spaces and loads.

67 Where unloading is to take place under the sole control of the tanker driver, the site operator should still provide recorded details to the tanker driver of the ullage space available in each of the relevant tank or tanks and a means for the tanker driver to verify the ullage.

68 Ullage should be measured and recorded as close to the expected delivery time as possible. This can be achieved by a computerised system that will provide a print-out or display the information on a computer screen in the tanker's cab. The information can be stored electronically, provided it is retrievable and readily accessible to the site operator and inspectors of the petroleum enforcing authority. However, computerised systems may not always be accurate and could also fail without warning. It is the tanker driver's responsibility to check that the ullage reading is greater than the quantity to be delivered and delivery should only take place once satisfactory ullage readings have been taken from the site equipment. It is not the tanker driver's responsibility to alter information relating to ullage figures.

69 It is acceptable for the information to be given to the driver when they leave the terminal, provided that the ullage figure is the actual ullage and is always greater than the quantity to be delivered.

70 Any system that predicts the ullage of a storage tank before the road tanker's arrival will require appropriate safeguards, including when the tanker arrives on site, providing the driver with recorded details of the ullage space available in each of the relevant tank or tanks and a means for the driver to verify the ullage. This is to prevent the driver unloading into the tank if subsequent unforeseen circumstances have resulted in insufficient ullage when the tanker arrives on site, eg temporary closure of the petrol filling station, or one or more of the dispensers being out of action.

ACOP

Information provision

71 Written instructions and other relevant information must be made available to a tanker driver, to bring to their attention any matters that are relevant to the safe unloading of petrol at the site.

Guidance

72 Following the coordinated risk assessment, special precautions may be identified as control measures for the delivery of petrol at certain sites. These may include:

(a) closure of the site to the public during deliveries;
(b) special measures to control spillages;
(c) no deliveries outside set hours;
(d) specified entry and exit routes for the road tanker;
(e) providing cones or barriers;
(f) prohibition of certain activities (eg use of the carwash) during deliveries etc;
(g) no simultaneous deliveries of dry goods.

73 Information on some of these control measures may need to be provided to the tanker driver in advance via the road tanker operator.

74 Further guidance on special precautions can be found in the Red Guide.[7]

ACOP

75 The site operator should ensure that the information:

(a) as to the ullage of each storage tank into which a delivery is to be made, is in accordance with paragraphs 62—70; and
(b) as to the amount of petrol delivered to each tank, in accordance with paragraph 120(b),

is preserved and readily available for a period of six months from the date of delivery. The record may be preserved in any suitable manner, including electronic.

Guidance

Storage tank fittings and associated equipment

76 Where a siphon is used to interconnect two or more tanks, the tanks may be filled either simultaneously or separately.

ACOP

77 Where simultaneous filling is not used, and any storage tank is connected to another by means of a siphon pipe, that first tank should, unless it is fitted with a suitable overfill prevention device, be isolated from any other tank by a suitable valve or valves before any petrol is unloaded into that first tank.

78 The filling point of each storage tank should be uniquely identified (including grade) and indicate the maximum working capacity of the tank to which it is associated.

79 The filling point cap should remain closed and secured against interference from unauthorised people at all times, other than when the filling point is being used to unload petrol into the associated storage tank or for other appropriate activities.

Guidance

80 There will be situations where the filling point cap needs to be removed for purposes other than delivering petrol into the tank, for example:

(a) maintenance, tank and line testing;
(b) checking the performance of the vapour recovery system;
(c) returning petrol to the tank after it has been dispensed for the purpose of measuring the accuracy of the dispensers;
(d) transferring petrol between storage tanks when a leak on one of the tanks is suspected etc;
(e) uploading petrol into a road tanker in circumstances outlined in (d) or where the product has been contaminated due to a crossover on delivery or water ingress.

81 Materials of construction and design taking into account human factors aspects, including means for securing the cap, should be durable and of appropriate, non-sparking material.

ACOP

82 Where there is more than one vapour recovery point, they should be uniquely identified by reference to the storage tank or tanks they serve.

83 Where petrol is to be delivered using an on-site pump, the pump and its associated equipment should be suitable for the purpose, properly installed and maintained in accordance with the manufacturer's instructions.

84 Where unloading of the petrol delivery is via a site-located cargo pump into a tank above ground, the delivery hoses should be designed and positioned so as to drain into the site fuel system in the event of a failure of one or more cargo pumps.

85 Any hoses belonging to the site used for unloading petrol, including vapour recovery, should be in good condition, fitted with appropriate connectors, electrically conductive and inspected regularly in accordance with the manufacturer's instructions, or at least annually. Worn or damaged hoses should be replaced.

Guidance

86 The site operator should ensure that any hoses provided by the site for tanker drivers to use are in good condition and subjected to a programme of electrical continuity testing.

ACOP

87 In any case where a tanker driver may be required to unload petrol at the site without the assistance of the site operator, suitable and effective means of preventing an overfill should be provided for each storage tank.

Guidance

88 An overfill prevention device or a high-level alarm would satisfy this requirement. Information about the presence of this equipment at a site will need to be provided in advance to the tanker driver via the road tanker operator. See also paragraphs 116(a)(i) and 116(b)(i).

89 Where the overfill prevention device is fitted with a high-level alarm, the site operator should ensure that it:

(a) is fit for purpose;
(b) is sufficiently accurate;
(c) has an appropriate level of safety integrity;
(d) is audible from the tanker delivery position;
(e) is maintained in accordance with the manufacturer's instructions.

Guidance

90 Road tanker operators and site operators should ensure that equipment used for unloading petrol from petrol tankers is suitable for the purpose intended, and maintained in accordance with the manufacturer's instructions. Regular equipment audit arrangements should be in place.

ACOP

91 Adequate illumination to a minimum measured luminance of 100 lux at ground level must be provided where necessary to enable unloading to be carried out safely.

Guidance

92 Adequate illumination should be provided for unloading outside daylight hours, including at the tanker unloading point and, where applicable, at the above-ground fill point enclosure (cabinet). Artificial illumination may also be necessary at sites where natural light is obstructed in some way. A luminance of a minimum of 100 lux at ground level would normally be considered adequate. Site operators should bear in mind that a tanker driver who considers the available light insufficient to do the job safely may refuse to make the delivery. As deliveries may take place after dark and in poor weather, it is important that the form (see Appendix 2) is of a size where the print can be read in a safe and minimum measured luminance of 100 lux.

ACOP

93 Suitable means of communication must be available to enable the tanker driver or site operator to make direct contact with the emergency services. It is the responsibility of both the site operator and the tanker driver to know when and how to contact the emergency services and both should be aware of the procedures to follow. It is the responsibility of the site operator to ensure that the telephone system and pre-set numbers are operational before any delivery.

Guidance

94 The telephone should be a fixed-dial landline (not mobile or battery operated). The phone should have a dedicated line to the emergency services and be preset with the up-to-date numbers of the site operator and the road tanker operator. The phone should be easily available to both the site operator and the tanker driver during deliveries. Its location should be:

(a) clear to both site operator and tanker driver;
(b) in a safe place within the boundaries of the petrol filling station forecourt, where the user will be positioned physically clear of any potential fire involving the road tanker and the potentially wetted area of any spillage.

ACOP

95 A switch, which is capable of cutting off the power supply to all fuel dispensers at the site, must be provided. The switch should be fitted with a device which can only be reset manually. Where resetting can happen remotely this must not happen until the original fault is investigated and resolved.

96 On sites where tanker drivers are delivering fuel without the assistance of the site operator, the switch must be easily identifiable and available to them.

Guidance

97 Where there is already an externally located petrol pump isolation switch, which is easily accessible to the tanker driver when unloading petrol, there is no need to provide an additional isolation switch.

98 The isolation switch should be located in a safe place within the boundaries of the petrol filling station forecourt, where the user is positioned physically clear of any potential fire involving the road tanker and the potentially wetted area of any spillage.

Guidance

99 The fixed telephone and the isolation switch may be located in the petrol filling station shop, provided this is open at all times when petrol deliveries are made. Ideally, the telephone, isolation switch and ullage printer should be co-located.

ACOP

100 The site operator should have emergency arrangements in place to deal with overfills and spillages that may potentially occur during delivery of petrol and ensure site staff are trained in these and their implementation.

101 The emergency arrangements should be developed in coordination with those of the road tanker operator to enable the tanker driver to ensure any actions they take are compatible with the site operator's emergency arrangements (see paragraphs 40—42).

Guidance

102 A sufficient amount of dry sand or other suitable absorbent material should be provided in a suitable receptacle. This is to soak up residual and manageable spillages of petrol (see paragraphs 42—44), for when such spillages occur in locations of filling stations and where relevant measures (eg diversionary kerbs and/or slope to a safe area, drainage grids/channels and interceptor or constructed wetland systems) will not safely deal with them.

103 The site operator should also provide a suitable lidded container for the disposal of contaminated waste.

104 Any material used to soak up petrol will be heavily contaminated and considered special waste under the Hazardous Waste (England and Wales) (Amendment) Regulations 2009,[16] and in Scotland the Special Waste Amendment (Scotland) Amendment Regulations 2004.[17] Duties concerning its safe disposal can be found in the Environmental Protection Act 1990.[18]

ACOP

105 In addition to any fire extinguisher carried on the road tanker, a properly maintained and suitable fire extinguisher should be provided that is readily accessible to the tanker driver and site operator when unloading petrol.

Guidance

106 The consequences of a fire can often be greatly reduced if prompt and correct action is taken as soon as the event occurs. While priority should always be given to calling the emergency services and evacuating people from the premises if it is safe to do so, it may be appropriate to tackle small fires to prevent their spread and escalation. Anyone expected to use a fire extinguisher should be trained in its appropriate use and the type and size of fire that may be tackled.

107 New fire extinguishers should comply with BS EN 3-7[19] and have a minimum test fire rating of 144B. Guidance on the selection and installation of fire extinguishers is given in BS 5306-8,[20] and their maintenance in BS 5306-3.[21]

ACOP

Requirements for assisted and unassisted deliveries

108 Where the tanker driver is assisted, the site operator must be present to assist during the operations and to ensure, so far as is reasonably practicable:

(a) that no source of ignition is present in the hazardous areas associated with petrol unloading, or that no other activity is taking place outside these areas that may pose a risk to the safe unloading of petrol, ie present an ignition hazard or pose a risk of causing ignition;
(b) the safety of any person who may be affected by a spillage of petrol during unloading;

ACOP

(c) that all filling points, other than those of the tanks being filled, are closed and secured;
(d) that no other vehicle can collide with the tanker.

109 The site operator should also, if necessary to meet the requirements of sub-paragraphs 108(a) and 108(b), direct the tanker driver to cease the unloading of petrol.

110 The site operator should be present until delivery is complete and all caps and covers moved or removed during delivery have been properly replaced.

111 Where the tanker driver is unassisted, the site operator should ensure that suitable and sufficient means have been provided to prevent any likely escape of petrol reaching:

(a) any part of the site which is open to the public;
(b) anywhere off-site, especially where there is a risk of petrol entering drains or basements.

112 If the full requirements of paragraphs 108—111 cannot be met, the unloading of petrol should not take place, or the petrol filling station should be closed to the public while the petrol is unloaded.

Guidance

113 In relation to paragraph 108(d), at some sites the tanker may need to park on a public road to unload. In these cases it will be necessary to alert other road users by means of warning signs or cones.

114 The requirements of paragraph 111(b) can be achieved by designing the site in such a way that petrol escaping from the fill point would quickly encounter a separator or an on-site spillage retention system. Further details can be found in the Blue Book.[14]

115 Site operators should:

(a) have appropriate arrangements in place for gritting of forecourt road surfaces during poor weather conditions to enable safe entry and exit for road tankers;
(b) take account of the potential for poor visibility during poor weather conditions when preparing the site for a road tanker to make a petrol delivery;
(c) ensure appropriate high-visibility clothing and antistatic footwear are provided to all those involved in petrol deliveries.

ACOP

Special situations

116 In those exceptional circumstances, where the MWC of the receiving petrol storage tank is smaller than the volume of the delivery compartment on the road tanker, petrol may be unloaded under the following conditions:

(a) where the tanker driver is assisted and:
  (i) the storage tank is fitted with means of preventing an overfill; or
  (ii) the road tanker is fitted with means for continuously measuring the amount of petrol being unloaded from its tank; or
  (iii) the delivery compartment on the road tanker has been pre-filled with an amount not greater than the ullage specified by the site operator; or

ACOP

(b) where the tanker driver is unassisted and:
  (i) the storage tank is fitted with means of preventing an overfill; and
  (ii) the road tanker is fitted with means (other than by the use of a dipstick) for continuously measuring the amount of petrol being unloaded from its tank.

117 For both assisted and unassisted deliveries, no other road tanker containing dangerous substances such as liquefied petroleum gas should be unloaded at the same time. Petrol unloading cannot take place when another tanker is on the site.

Responsibilities of the tanker driver

ACOP

118 Where petrol is being unloaded from a road tanker at a site, no more than two of the tanker's compartments (including compartments containing diesel) should be unloaded at the same time.

Guidance

119 Any risk assessment carried out as a result of the requirements of paragraph 118 should take into account any limitations to the number of compartments that may be unloaded at the same time, as stipulated in any authorisation issued by the local authority, the Environment Agency in England, the Natural Resources Body for Wales, or the Scottish Environment Protection Agency on vapour recovery. The findings of this sort of risk assessment cannot override the conditions of such an authorisation.

ACOP

120 Before unloading petrol at a site, a tanker driver should:

(a) examine any written instructions made available, as noted in paragraphs 71 and 72, and ensure that they have been complied with;
(b) verify that the appropriate storage tank may safely receive the quantity, and grade, of petrol to be unloaded;
(c) verify the location of any means of communication provided in accordance with paragraphs 93 and 94 and that it is in working order;
(d) verify that the isolation switch for the fuel dispensers is located and readily accessible in accordance with paragraphs 95—99;
(e) verify that a fire extinguisher, suitable lidded container, and absorbent material have been provided in accordance with paragraphs 102—107;
(f) ensure that the requirements of paragraphs 87—90, and 111, have been complied with at sites where delivery takes place without the assistance of the site operator;
(g) ensure all hoses are in good condition;
(h) connect the hoses in the following order:
  (i) any vapour recovery hose (tanker end first);
  (ii) any hose which is to be used for the unloading of petrol (underground tank first);
  (iii) and ensure all hose connections are secure.

Delivery should not proceed if any of the above conditions is not fulfilled.

Guidance

121 Before unloading, the tanker driver should also ensure that the site operator has provided an effective means for preventing an overfill. Where a site has overfill prevention devices fitted internally within the tanks, it may be impracticable for the driver to carry out a physical check and another means of complying with this duty will need to be in place.

122 This duty can be achieved by the road tanker operator ensuring the site operator has provided some system or mechanism to prevent overfills during deliveries of petrol on a 'driver unassisted delivery'.

ACOP

123 Except where it has to be used to drive pumps or other appliances for unloading the vehicle, the road tanker's engine must be shut off, and the vehicle's master isolation switch engaged, during unloading operations.

Guidance

124 On-board pumps are sometimes used to unload diesel from road tankers carrying petrol in other compartments. These pumps should not be used to unload diesel at the same time as petrol is being unloaded.

ACOP

125 During the course of unloading petrol at a site, a tanker driver should:

(a) oversee the unloading operation to ensure, so far as is reasonably practicable, that the receiving storage tank is not overfilled;
(b) ensure that all filling points, other than those of the tanks being filled, remain closed;
(c) cease to unload the petrol immediately if there are any leaks from any hose, hose connection, or joint;
(d) cease to unload the petrol immediately if there is reason to believe that any means for measuring the amount of petrol unloaded from the road tanker is faulty;
(e) where unloading petrol without the assistance of the site operator, ensure, so far as is reasonably practicable, that:
  (i) no source of ignition is present in the hazardous areas associated with petrol unloading, or any other activity is taking place outside these areas that may pose a risk to the safe unloading of petrol; and
  (ii) in the event of such circumstances arising, the delivery should not be started, or should cease immediately should such circumstances occur.
(f) in the event of overfill of the storage tank or spillage of petrol, initiate the appropriate emergency procedures relevant to the nature of the incident and the site.

126 Following the unloading of petrol but before leaving the site, the tanker driver should ensure that:

(a) any hose referred to in paragraph 120(h) has been disconnected, in the following order:
  (i) any hose which has been used for the unloading of petrol (road tanker end first);
  (ii) any vapour recovery hose (vapour recovery point end first);
(b) all caps and access covers moved or removed during the unloading of petrol have been properly replaced;
(c) information concerning the amount of petrol delivered to each tank is recorded and given to the site operator.

Additional requirements for pumped deliveries

Guidance

127 Where petrol is to be unloaded from a road tanker by means of an on-board pump, additional precautions are necessary. The responsibilities are divided between the road tanker operator, the site operator and the tanker driver. These are as follows.

128 Where petrol is to be unloaded from a road tanker into a tank above ground using equipment installed as part of the site fuel system, for example via a cargo pump, the following actions should be taken:

(a) the tanker driver and any site staff who may assist with the delivery should be trained in the operation of the offloading equipment;
(b) arrangements should be in place to drain down the tanker delivery hose(s) in the event of a failure of the offloading equipment while a delivery is in progress.

129 Where pumped deliveries are to be made at a site, both the site operator and the road tanker operator should consider the activity in their risk assessments.

130 The road tanker operator should ensure that the tanker, pumps and any associated equipment have been designed and certified for use in the hazardous areas that may exist during unloading.

131 The site operator should ensure that:

(a) all tanks, valves, pipework etc are suitable for pumped deliveries;
(b) suitable means are available to avoid spills from vent pipes or dispensers;
(c) each storage tank into which a pumped delivery is to be made is fitted with an overfill prevention device that can be interlocked with the road tanker pump. It should be set to operate before the 'maximum working capacity' of the tank is reached.

132 The tanker driver should ensure that any interlocks between the road tanker and the storage tank are in place before delivery starts.

Appendix 1 Notice of Approval

By virtue of section 16(4) of the Health and Safety at Work etc Act 1974, and with the consent of the Secretary of State for Work and Pensions, the Health and Safety Executive has on 1 October 2014 approved the revised Code of Practice entitled *Unloading petrol from road tankers* (Second edition, 2014, L133).

The revised Code of Practice gives practical guidance on the Dangerous Substances and Explosive Atmospheres Regulations 2002 with regard to the safe unloading of petrol from road tankers at premises which require a certificate under the Petroleum (Consolidation) Regulations 2014. The Code of Practice comes into effect on 4 December 2014.

This revised edition replaces the previous edition entitled *Unloading petrol from road tankers* (First edition) which came into effect on 29 April 2003.

Signed

TERESA QUINN
Secretary to the Board of the Health and Safety Executive

2 December 2014

Appendix 2 Petrol delivery form

Address of premises:

The site operator and tanker driver should complete this form before delivery into the storage tank begins.

Storage tank number, letter, or number and letter	Ullage	Quantity of petrol to be delivered	Grade of petrol to be delivered	Road tanker carrying tank compartment	
				No	Quantity

Signature of site operator ..... Date and time .....

Signature of driver ..... Date and time .....

References and further reading

References

1 *Dangerous substances and explosive atmospheres: Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance* L138 (Second edition) HSE Books 2013 ISBN 978 0 7176 6616 4 www.hse.gov.uk/pubns/books/l138.htm

2 *Petroleum (Consolidation) Regulations 2014* SI 2014/1637 The Stationery Office www.legislation.gov.uk/uksi/2014/1637/contents/made

3 *Control of substances hazardous to health (COSHH). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance* L5 (Sixth edition) HSE Books 2013 ISBN 978 0 7176 6582 2 www.hse.gov.uk/pubns/books/l5.htm

4 *Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009* SI 2009/1348 The Stationery Office www.legislation.gov.uk/uksi/2009/1348/contents/made

5 *European Agreement concerning the International Carriage of Goods by Road* 2004 (as amended 2005) www.dft.gov.uk/topics/freight/dangerous-goods

6 *Controlling fire and explosion risks in the workplace: A brief guide to the Dangerous Substances and Explosive Atmospheres Regulations* Leaflet INDG370(rev1) HSE Books 2013 www.hse.gov.uk/pubns/indg370.htm

7 *Petrol filling stations guidance on managing the risks of fire and explosion* (the Red Guide) Energy Institute 2012 https://www.energyinst.org/documents/1317

8 *The storage of flammable liquids in tanks* HSG176 HSE Books 1998 ISBN 978 0 7176 1470 7 www.hse.gov.uk/pubns/books/hsg176.htm

9 Energy Institute Service Station Panel Guide *Design and operating limits for fuel storage tanks at retail filling stations* www.energypublishing.org

10 Management of Health and Safety at Work Regulations 1999 SI 1999/3242 The Stationery Office www.legislation.gov.uk/uksi/1999/3242/contents/made

11 *Working alone: Health and safety guidance on the risks of lone working* Leaflet INDG73(rev3) HSE Books 2013 www.hse.gov.uk/pubns/indg73.htm

12 *Guidelines for an emergency action plan for fire and explosion risks at filling stations* Energy Institute www.energypublishing.org

13 *Consulting workers on health and safety. Safety Representatives and Safety Committees Regulations 1977 (as amended) and Health and Safety (Consultation with Employees) Regulations 1996 (as amended). Approved Codes of Practice and guidance* L146 (Second edition with amendments) HSE Books 2014 ISBN 978 0 7176 6461 0 www.hse.gov.uk/pubns/books/l146.htm

14 *Guidance for design, construction, modification, maintenance and decommissioning of filling stations* (the Blue Book) APEA www.apea.org.uk/publication/blue-book-pdf

15 *Guidance on the notification of petroleum spills* Petroleum Enforcement Liaison Group www.energyinst.org/_uploads/documents/pelg-petel-11-notification-of-petroleum-spills.pdf

16 *Hazardous Waste (England and Wales) (Amendment) Regulations 2009* SI 2009/507 The Stationery Office www.legislation.gov.uk/uksi/2009/507/contents/made

17 *Special Waste Amendment (Scotland) Amendment Regulations 2004* SI 2004/204 The Stationery Office www.legislation.gov.uk/ssi/2004/204/contents/made

18 *Environmental Protection Act 1990* The Stationery Office www.legislation.gov.uk/ukpga/1990/43/contents

19 BS EN 3-7:2004+A1:2007 *Portable fire extinguishers. Characteristics, performance requirements and test methods* British Standards Institution

20 BS 5306-8:2012 *Fire extinguishing installations and equipment on premises. Selection and positioning of portable fire extinguishers. Code of practice* British Standards Institution

21 BS 5306-3:2009 *Fire extinguishing installations and equipment on premises. Commissioning and maintenance of portable fire extinguishers. Code of practice* British Standards Institution

Further reading

Model Code of Safe Practice Part 21: Guidelines for the control of hazards arising from static electricity Energy Institute February 2013 ISBN 978 0 85293 636 8

Process Guidance Note 1/14 (06) *Unloading of Petrol into Storage at Petrol Stations* DEFRA http://archive.defra.gov.uk/environment/quality/pollution/ppc/localauth/pubs/guidance/notes/pgnotes/documents/pg1-14.pdf

Workplace transport safety: A brief guide Leaflet INDG199(rev2) HSE Books 2013 www.hse.gov.uk/pubns/indg199.htm

A guide to workplace transport safety HSG136 (Third edition) HSE 2014 www.hse.gov.uk/pubns/books/hsg136.htm

Further information

For information about health and safety, or to report inconsistencies or inaccuracies in this guidance, visit www.hse.gov.uk. You can view HSE guidance online and order priced publications from the website. HSE priced publications are also available from bookshops.

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This publication is available online at: www.hse.gov.uk/pubns/books/l133.htm.

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