



**IGEM/G/11 Supplement 1  
Communication 1851**

***Responding to domestic CO alarm  
activations/reports of fumes after  
attendance by the emergency service  
provider or the Liquefied Petroleum Gas  
supplier***



*Founded 1863  
Royal Charter 1929  
Patron: Her Majesty the Queen*





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## SECTION 1: INTRODUCTION

- 1.1 This Procedure has been drafted by a Panel appointed by the Institution of Gas Engineers and Managers (IGEM) Technical Coordinating Committee, subsequently approved by that Committee; the Gas Utilisation Committee, the Gas Measurement Committee and the Gas Transmission and Distribution Committee and published by the authority of the Council of IGEM.
- 1.2 In creating this Procedure the Panel has applied the Gas Safety (Installation and Use) Regulations (GS(I&U)R) and their Approved Code of Practice (ACoP) guidance document L56 when dealing with reports of carbon monoxide (CO) alarm activation and/or reports of fumes.
- 1.3 This Procedure is intended for use by Gas Safe registered businesses/engineers when dealing with reports of CO alarm activation and/or reports of fumes in domestic premises supplied with Natural Gas (NG) or Liquefied Petroleum Gas (LPG), and is intended to follow a site specific risk assessment.
- 1.4 This Procedure provides guidance to competent engineers for the scope of work they can undertake when attending to reports of CO alarms/fumes in domestic properties, without the need to hold a specialist qualification (i.e. CMDDA1).
- 1.5 This Procedure provides guidance when competent engineers need to escalate the situation to an engineer who holds specialist qualification (i.e. CMDDA1).
- 1.6 For premises other than domestic, including premises that are outside the scope of GS(I&U)R, the safety principles outlined in this Procedure can be used, following a suitable risk assessment and by persons with appropriate competency.
- 1.7 This Procedure makes use of the terms "must", "shall" and "should" when prescribing particular requirements. Notwithstanding clause 1.10:
- the term "must" identifies a requirement by law in Great Britain (GB) at the time of publication
  - the term "shall" prescribes a requirement which, it is intended will be complied with in full and without deviation
  - the term "should" prescribes a requirement which, it is intended, will be complied with in full unless, after prior consideration, deviation is considered to be acceptable.
- Such terms may have different meanings when used in Legislation, or Health and Safety Executive (HSE) ACoPs or Guidance, and reference needs to be made to such statutory Legislation or official Guidance for information on legal obligations.
- 1.8 The primary responsibility for compliance with legal duties relating to health and safety at work rests with the employer. The fact that certain employees, for example "competent engineers" are allowed to exercise their professional judgement does not allow employers to abrogate their primary responsibilities. Employers must:
- have done everything to ensure, as far as is reasonably practicable, that there are no better protective measures that can be taken other than relying on the exercise of professional judgement by "competent engineers"
  - have systems and procedures in place to ensure that the exercise of professional judgement by "competent engineers" is subject to appropriate monitoring and review

- not require “competent engineers” to undertake tasks which would necessitate the exercise of professional judgement that is not within their competence. There should be written procedures defining the extent to which “competent engineers” can exercise their professional judgement. When “competent engineers” are asked to undertake tasks which deviate from this, they should refer the matter for higher review.

1.9 It is now widely accepted that the majority of accidents in industry generally are in some measure, attributable to human as well as technical factors. People who initiated actions that caused or contributed to accidents might have acted in a more appropriate manner to prevent them.

To assist in the control and proper management of these human factors, due regard should be taken of HSG48 and HSG65.

1.10 Notwithstanding Sub-Section 1.5, this Procedure does not attempt to make the use of any method or specification obligatory against the judgement of the competent engineer. Where new and better techniques are developed and proved, they should be adopted without waiting for modification of this Procedure. Amendments to this Procedure will be issued when necessary and their publication will be announced in the Journal of IGEM and other publications as appropriate.

1.11 This Procedure has been drawn up by the gas industry, **in order to assist competent engineers** in meeting their legal duties in accordance with the GS(I&U)R and associated Approved Codes of Practice and Guidance and correctly deal with reports of CO alarms activations and/or fumes.

HSE supports this Procedure, which will assist the industry in maintaining a consistent approach to dealing with reports of CO alarms activations and/or fumes.

This Procedure, is in effect a “live” document and is intended to be revised periodically as new information/guidance is developed. To ensure that you keep up to date with the current requirements of this Procedure visit: <http://igem.org.uk/>.

1.12 Requests for interpretation of this Procedure in relation to matters within its scope, but not precisely covered by the current text, should be either:

- addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA; or
- emailed to [technical@igem.org.uk](mailto:technical@igem.org.uk).

These will be submitted to the relevant Committee or Panel for consideration and advice, but in the context that the final responsibility is that of the engineer concerned. If any advice is given by or on behalf of IGEM, this does not relieve the competent engineer of any of their obligations.

1.13 This Procedure was published in March 2022.

## SECTION 2: SCOPE

- 2.1 The information provided in this Procedure is relevant to all gas equipment (installations and appliances) installed in domestic premises (see clause 1.4).
- 2.2 It aims to provide guidance to competent engineers when dealing with reports of CO alarm activation and/or reports of fumes after attendance by the Emergency Service Provider (ESP) or the LPG supplier, who have made safe and deemed the property's atmosphere safe.
- 2.3 When not on site, gas engineers may receive reports of CO alarm activations / reports of fumes. The situation is to be immediately reported to the ESP/LPG supplier who will attend and make the situation safe.
- Note: A reference number can be obtained from the ESP/LPG Supplier.*
- 2.4 The priority for gas engineers when dealing with reports of CO alarm activation and/or reports of fumes is to safeguard life and property. It is essential that gas engineers are able to identify gas equipment which presents a danger or potential danger and take prompt corrective actions to eliminate such danger.
- 2.5 Italicised text is informative and does not represent formal requirements.
- 2.6 Appendices are informative and do not represent formal requirements unless specifically referenced in the main sections via the prescriptive terms "must" "should" or "shall".

## SECTION 3: LEGAL AND ALLIED CONSIDERATIONS

### 3.1 GENERAL

This Procedure outlines the appropriate actions which are deemed as best practice by industry that engineers need to take to ensure they comply with the legislation outlined below.

### 3.2 PRIMARY LEGISLATION

#### 3.2.1 Health and Safety at Work etc. Act (HSWA)

There is a duty under this Act, for everyone at work (employers and the self-employed) to ensure, as far as reasonably practicable, that their activities or omissions do not expose others to risk.

### 3.3 SECONDARY LEGISLATION

#### 3.3.1 Gas Safety (Installation and Use) Regulations (GS(I&U)R)

##### 3.3.1.1

GS(I&U)R are concerned with the installation and use of gas fittings in all domestic premises and commercial premises e.g. hospitals, educational establishments, offices, hotels, restaurants, mobile catering units, leisure accommodation vehicles, (including caravan holiday homes and hired touring caravans), inland waterway craft hired out to the public and sleeping accommodation, wherever it is located.

Generally, GS(I&U)R do not apply in Factories, Mines, Quarries, Sewage Works and Agricultural premises (except parts used for domestic or residential purposes, or as sleeping accommodation). However, other safety legislation does apply e.g. HSWA.

The legal definition of "factory" is wide ranging and in addition to manufacturing and/or processing premises, includes printing, fruit and vegetable packing, scrap yards, repair workshops (e.g. for televisions or vehicles), dairies, prison workshops, certain warehouses using mechanical power and power stations etc.

GS(I&U)R place particular requirements on gas engineers relating to matters of gas safety. Under the requirements of these Regulations, engineers have to make judgements on the level of risk. In particular, this relates to Regulations 26(9), 34(3) and 34(4). The ACOP and L56 guidance document 'Safety in the installation and use of gas systems and appliances' is available from the HSE web site via the following web link:

<http://www.hse.gov.uk/pubns/priced/l56.pdf> .

GS(I&U) R require any person carrying out any gas work who becomes aware of an unsafe or dangerous situation to inform the responsible person.

However, this duty only extends to those issues which are within the competence of the person engaged in work and which it is reasonable to expect the person to notice through visual inspection, for example, when relighting an appliance following the interruption of the gas supply or when observing an appliance in the course of other work. It is not expected that additional tests and examinations be undertaken on appliances not being worked on by that person.

A gas engineer would be expected to be able to identify apparent unsafe situations from a visual inspection, for further guidance refer to Appendix 5 of IGEM/G/11.



GS(I&U)R also make it an offence for a gas user/responsible person or any other person, to use a gas appliance/installation once they have been advised that the appliance/installation constitutes a danger.

### 3.3.2 **Gas Safety (Management) Regulations (GS(M)R)**

GS(M)R place duties on Gas Transporters (GT) to provide a 24/7 gas emergency service on their Networks by employing ESP and operating the National Gas Emergency 0800 111 999 free phone number.

Anyone contacting the National Gas Emergency number will be given safety advice, including how to turn off the supply and ventilate the property.

ESPs must respond to and make safe all reported gas emergencies, including gas escapes and CO/fumes, as soon as reasonably practicable. This will result in any unsafe appliance or installation being made safe pending further investigation by another competent engineer.

Suppliers of LPG have similar duties to those described above. These are covered by GS(I&U)R.

### 3.3.3 **The Gas Safety (Rights Of Entry) Regulations**

These regulations apply to GTs, who have rights to enter premises in respect of suspected escapes of gas or dangerous appliances without the consent of the owner or occupier.

These rights can only be exercised where the GT has reasonable cause to believe that there is a danger to life or property and immediate entry to the premises is necessary to make safe.

On entering premises, the GT may disconnect and seal off appliances/fittings or the entire gas installation if considered necessary "for the purpose of averting danger to life or property".

### 3.3.4 **Reporting Of Injuries, Diseases And Dangerous Occurrences Regulations (RIDDOR)**

Under RIDDOR, registered businesses or their engineers are required to notify the HSE of certain unsafe situations, see regulation 11 of RIDDOR <https://www.legislation.gov.uk/ukxi/2013/1471/contents/made> (see also Section 8 of IGEM/G/11 for further guidance).

**SECTION 4: RESPONDING TO DOMESTIC CO ALARM ACTIVATIONS/ REPORTS OF FUMES AFTER ATTENDANCE BY THE ESP OR THE LPG SUPPLIER**

- 4.1 If a situation has occurred which meets the criteria of RIDDOR 11 (1) i.e. a death, unconsciousness or a person has been taken to hospital (see section 8 of IGEM/G/11), **no work shall be undertaken** apart from turning off the supply of gas to the property, until the HSE have been informed and have granted permission to proceed. Proceeding without permission may compromise a legal investigation and may be a breach of the law. Gas Suppliers have a legal duty to investigate such incidents under the Gas Safety (Management) Regulations. These investigations shall be carried out in accordance with IGEM/GL/8.
- 4.2 A site-specific risk assessment must be carried out before entering the property.
- 4.3 Following the attendance of an ESP/LPG Supplier, an engineer shall hold the relevant competencies to work on **all** the gas appliances present in the property to be able to respond to CO alarm activations / reports of fumes without the requirement for further specialist training/competence, such as CMDDA1.  
  
The basic process to follow in domestic situations appears in Section 5.  
  
Situations where additional competencies may be required are shown in Table 1.
- 4.4 Where other fuel burning appliances considered to be the source of the CO/fumes are encountered, other specialist qualifications shall be required to determine safe operation.

	<b>SITUATION</b>	<b>RECOMMENDATION</b>
1	The responding engineer has failed to identify the cause of the CO alarm activation / source of fumes or smell. Engineers must consider other sources of CO: see situation 2 below	Leave gas disconnected and installation classified as ID. Escalate to an engineer with further specialist investigation competence e.g. CMDDA1
2	If other potential sources of CO have not been inspected/checked: <ul style="list-style-type: none"> <li>• Suspected gas appliances in neighbouring properties,</li> <li>• Suspected other sources solid fuel, oil appliances, etc.</li> </ul>	Where CO from neighbouring properties is suspected contact the ESP or LPG Supplier (as appropriate) For other fuel sources solid fuel, oil appliances, etc. contact the relevant competent person (see table scenario 1.4 of IGEM/G/11)
3	Gas appliances are deemed satisfactory, and no cause of alarm activation or symptoms has been identified	To rule out ambient CO, escalate to an engineer with further specialist investigation competence e.g. CMDDA1
4	The Gas User/Responsible Person reports a previous occurrence of CO Alarm activation, reports of fumes or smells within the property (within a 3-month timeframe) with no identified obvious cause.	If not on-site report to the ESP or Gas Supplier (in the case of LPG) If on-site disconnect the gas supply and escalate to an engineer with further specialist investigation competence e.g. CMDDA1.

*Note: Until resolved, gas installations are to be classified in accordance with IGEM/G/11.*

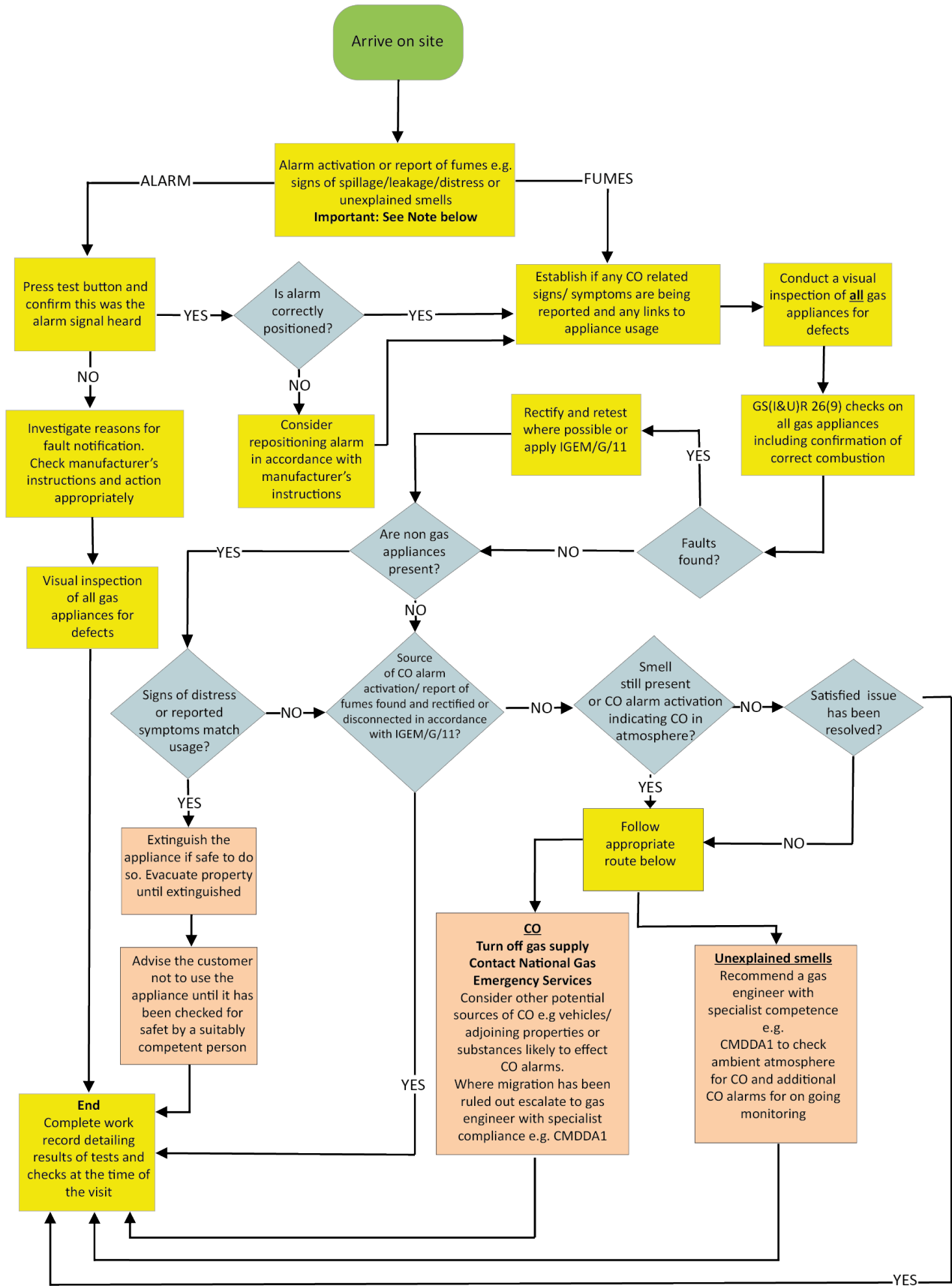
**TABLE 1 - SITUATIONS WHERE ADDITIONAL COMPETENCIES MAY BE REQUIRED**

## SECTION 5: INVESTIGATION PROCESS

- 5.1 When following the investigation process outlined in Figure 1, the Gas Safe Registered Engineer shall:
- Not undertake any work other than to make a situation safe where a person has died, been made unconscious, or has been taken to hospital, without contacting HSE first
  - Report any situation which meets the requirements of RIDDOR (see section 8 of IGEM/G/11)
  - Undertake a gas tightness test to rule out gas escapes
  - Test appliances in the condition they are found
  - Have an appropriate level of understanding of combustion, likely sources of CO from all fuels, CO movement in properties, and the effects of CO
  - Understand the correct standard\* and location of CO alarms along with their alert signals, referring to manufacturer's instructions where appropriate
  - Hold appropriate competencies to carry out tests and checks on all gas appliances within the property
  - Be equipped to undertake the following checks on all gas appliances:
    - the effectiveness of any flue
    - the supply of combustion air
    - operating pressure or heat input or, where necessary, both
    - combustion performance
    - operation to ensure its safe functioning.
  - Use a calibrated electronic portable combustion gas analyser conforming to BS EN 50379-3 to confirm safe combustion.
  - Act in accordance with IGEM/G/11
  - Issue a work record to the duty holder/responsible person that records all the results of all safety checks and tests undertaken at the time of the investigation.

The orange shaded boxes in the flowchart indicate where escalation to an engineer with additional specialist competencies may be appropriate.

\*Appropriate Standard for CO Alarms is the BS EN 50291 suite of Standards, further general information can be found at <http://www.cogdem.org.uk> .



Note: If there has been a death, loss of consciousness or someone taken to hospital then contact HSE to establish if a formal investigation by the gas supplier is required, (see Sections 7 & 8 of IGEM/G/11).

FIGURE 1 - INVESTIGATION PROCESS

## APPENDIX 1: ACRONYMS AND ABBREVIATIONS

<b>ACoP</b>	Approved Code of Practice
<b>CMDDA1</b>	Domestic carbon monoxide/carbon dioxide atmosphere and appliance testing; appliances burning 1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> family gases
<b>CO</b>	carbon monoxide
<b>ESP</b>	Emergency Service Provider
<b>GB</b>	Great Britain
<b>GS(I&amp;U)R</b>	Gas Safety (Installation and Use) Regulations
<b>ID</b>	Immediately Dangerous
<b>IGEM</b>	Institution of Gas Engineers and Managers
<b>HSWA</b>	Health and Safety at Work Etc. Act
<b>HSE</b>	Health and Safety Executive
<b>LPG</b>	Liquefied Petroleum Gas
<b>RIDDOR</b>	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations.

## APPENDIX 2: REFERENCES

### GAS SAFE REGISTER – LEGISLATIVE, NORMATIVE AND INFORMATIVE DOCUMENT LIST

Legislative, Normative and Informative Document List (LNIDL), - The Gas Safe Register Normative Document List provides a current list of Normative Documents - this can be viewed online by visiting:

<https://www.gassaferegister.co.uk/normativedocumentlist> .

### GAS SAFE REGISTER TECHNICAL BULLETINS AND SAFETY ALERTS

Technical Bulletins and Safety Alerts – these can be viewed by registered engineers on-line by visiting: <https://engineers.gassaferegister.co.uk> - login and visit the Technical Information area.

#### A2.1 PRIMARY LEGISLATION

- Health and Safety at Work etc. Act 1974

#### A2.2 SECONDARY LEGISLATION

- Gas Safety (Installation and Use) Regulations 1998 (as amended)
- Gas Safety (Management) Regulations 1996
- Gas Safety (Rights of Entry) Regulations 1996
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.

#### A2.3 HSE ACOPS AND GUIDANCE

- L56 Safety in the installation and use of gas systems and appliances. ACoP and Guidance
- HSG48 Reducing error and influencing behaviour
- HSG65 Successful health and safety management.

#### A2.4 BSI STANDARDS

- BS EN 50291-1 Gas detectors. Electrical apparatus for the detection of carbon monoxide in domestic premises - Test methods and performance requirements
- BS EN 50291-2 Electrical apparatus for the detection of carbon monoxide in domestic premises - Electrical apparatus for continuous operation in a fixed installation in recreational vehicles and similar premises including recreational craft. Additional test methods and performance requirements
- BS EN 50379-3 Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances. Performance requirements for apparatus used in non-statutory servicing of gas fired heating appliances

#### A2.5 IGEN STANDARDS AND GUIDANCE

- IGEN/GL/8 Reporting and investigation of gas related incidents  
Edition 3
- IGEN/G/11 Gas industry unsafe situations procedure.  
Edition 2

**APPENDIX 3: EMERGENCY CONTACT NUMBERS**

REGION	GAS TYPE		CONTACT DETAILS	TELEPHONE DETAILS
England, Scotland and Wales	Natural Gas		Contact the Gas Emergency Contact Centre	0800 111 999
	LPG*	Bulk and metered supplies		See telephone number on the bulk storage vessel or at the meter
		Cylinder supplies	For cylinder supplies on caravan parks and hire boats, the site owner and/or boat operator may also have responsibilities. Advice may be obtained from the gas company identified on the cylinder through their emergency contact details.	See gas supplier emergency contact details in the local telephone directory
Northern Ireland	Natural Gas		Northern Ireland Gas Emergency Service	0800 002 001
	LPG*	Bulk and Metered supplies		See telephone number on the bulk storage vessel or at the meter
		Cylinder supplies	For cylinder supplies on caravan parks and hire boats, the site owner and/or boat operator may also have responsibilities. Advice may be obtained from the gas company identified on the cylinder through their emergency contact details.	See gas supplier emergency contact details in the local telephone directory
Isle of Man	Natural Gas and LPG*		Manx Gas Ltd	0808 1624 444
Channel Islands - Guernsey	Mains Gas‡ and LPG*		Contact Guernsey Gas Ltd	01481 749000
Channel Islands - Jersey	Mains Gas‡ and LPG*		Contact Jersey Gas Company Ltd	01534 755555
‡ Mains gas in the Channel Islands is an LPG and air mixture			* LPG – Liquefied Petroleum Gas	

Gas Emergency contact details of suppliers of LPG in the British Isles are shown below.

*Note: This list is not exhaustive.*

Air Products:	0800 389 0202	BDS Fuels:	01524 276 575
AvantiGas:	0870 753 9999	Camgas:	01244 530 391
Calor Great Britain: Calor Northern Ireland:	03457 444 999 08450 755588	Gas Transportation Co:	01359 240 363
Countrywide:	01386 750 456 (in hours) 01386 750330 (out of hours)	Flogas: Great Britain Flogas: Northern Ireland	03457 200 100 028 9073 2611
Lister Gas:	0870 753 9999	Vista Gas (now Calor Gas)	03457 444 999
Shaw Gas:	01765 602621		



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