

Guidance on the investigation of spaceflight accidents

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Contents

Section 1: Overview of the Guidance.....	5
What is the purpose of this guidance document?.....	5
Who is this guidance for?.....	6
Using this guidance	6
The regulator.....	6
The safety investigation authority	6
Key terms	7
Carrying out spaceflight activities at sea	8
Requirements and expectations	9
Types of licence.....	9
Examples of offences and enforcement directions under the Act	10
The full list of guidance documents issued in relation to the Act.....	11
Section 2: Legislative Background.....	13
The Space Industry Act 2018.....	13
Section 20 of the Space Industry Act 2018	13
The Spaceflight Activities (Investigation of Spaceflight Accidents) Regulations 2021	13
Commencement of the Act.....	14
Section 3: First steps after a spaceflight accident.....	15
Required information.....	16
Preservation of evidence	17
Coordination of investigations.....	17
Judicial proceedings	18
Section 4: The safety investigation and inspectors' powers.....	19
The extent of a safety investigation.....	19
The duty to investigate and powers to investigate	19
Power to investigate spaceflight accidents occurring elsewhere than the United Kingdom	19
Assistance with UK safety investigations.....	19
Accredited representatives, advisers, experts and observers.....	19
Regulators	21
Investigator-in-charge and delegation of powers.....	21
Inspectors' powers.....	21
Inspectors' powers to call, examine and take evidence from a witness	22
Release of evidence to owners	22
Expenses.....	23
Section 5: Safety information	24

Applications for disclosure	24
Section 6: The safety investigation report and safety recommendations	25
Notice of safety investigation report	25
Safety recommendations	25
Other reports	26
Special Bulletins	26
Safety Studies	26
Annual Safety Review	26

Section 1: Overview of the Guidance

- 1.1 The Space Industry Act 2018 (the Act) regulates all spaceflight activities carried out in the United Kingdom, and associated activities.
- 1.2 The Act requires any person or organisation wishing to:
- launch a launch vehicle from the UK
 - return a launch vehicle launched elsewhere than the UK to the UK landmass or the UK's territorial waters
 - operate a satellite from the UK
 - conduct sub-orbital activities from the UK
 - operate a spaceport in the UK, or
 - provide range control services from the UK
- to obtain the relevant licence.
- 1.3 It is supported by The Space Industry Regulations 2021 (the Regulations), that set out in more detail the requirements for each licence, and the Regulator's Licensing Rules, which specify which application form to use to apply for a licence and what information the regulator will require in support of an application.
- 1.4 In addition, The Spaceflight Activities (Investigation of Spaceflight Accidents) Regulations 2021 define how spaceflight accidents will be investigated and by whom. These regulations also set out the powers of the Spaceflight Accident Investigation Authority and the objective of a safety investigation, as prevention of future accidents without apportioning blame or liability.
- 1.5 There is then a series of guidance documents designed to help explain how to comply with the Act and the regulations. This document is one of the guidance documents.

With the coming into force of [section 1\(3\) of the Act](#), the [Outer Space Act 1986](#) no longer applies to space activities carried on in the United Kingdom, and accordingly the Outer Space Act 1986 does not apply to a person or organisation wishing to carry out spaceflight activities or operate a spaceport in the United Kingdom. The Outer Space Act 1986 **will** continue to regulate the following activities carried out overseas by UK entities: the procurement of the overseas launch of a space object, where the procurement takes place in the UK; the operation of a satellite in orbit from an overseas facility by a UK entity. Extant licences granted under the Outer Space Act 1986 for the carrying out of space activities from within the UK will continue to be governed under that regime. Where an application for a licence has been made under the Outer Space Act 1986, it will be assessed under that Act and – where successful – will result in the award of a licence under the Outer Space Act 1986.

What is the purpose of this guidance document?

- 1.6 This guidance explains how any spaceflight accidents will be investigated and how licensees will be expected to support such investigations. Its purpose is to provide stakeholders with additional information to facilitate compliance with the regulatory requirements for investigation of spaceflight accidents.

- 1.7 This guidance is not intended to cover every circumstance that may be encountered in an investigation.

Who is this guidance for?

- 1.8 This guidance is for licensees under the Act.
- 1.9 The guidance may also be of relevance to:
- any people or organisations that intend to apply for a licence under the Act, as it explains what duties and responsibilities they would face in relation to accident investigation
 - people or organisations that supply or support licensees in any way, who may be required to provide information in relation to accident investigation

Using this guidance

- 1.10 The guidance is designed to provide an overview of the process of investigating any spaceflight accidents and give licensees an understanding of the information they may be asked to provide. It should be read in conjunction with [section 20 of the Space Industry Act](#) and [The Spaceflight Activities \(Investigation of Spaceflight Accidents\) Regulations 2021](#).
- 1.11 If applicants have any queries, they are encouraged to contact the regulator, to seek clarification or gain further information.

The regulator

- 1.12 The Civil Aviation Authority (CAA) will perform the functions of the regulator under the Act. It is referred to in this guidance as ‘the regulator’. Under [section 2 of the Act](#), the regulator must carry out its functions relating to spaceflight activities with a view to securing the health and safety of members of the public and the safety of their property. This duty has primacy over the other matters that the regulator must take into account in exercising its functions.
- 1.13 In performing its functions, the regulator will need at times to review confidential and commercially sensitive information. The regulator already has robust security processes in place that will ensure all the information sent in relation to applications, and monitoring ongoing licensed activities, is handled and protected appropriately. For more details on the regulator’s security processes and systems, please contact the regulator.

Contacting the regulator

The regulator can be contacted by email to commercialspaceflight@caa.co.uk. The regulator welcomes and encourages ongoing contact from prospective applicants before they submit an application for a licence. This can be from the earliest stages of considering whether to apply for a licence.

The safety investigation authority

- 1.14 The UK Space Accident Investigation Authority (SAIA) will perform the functions of the safety investigation authority and is responsible for conducting independent spaceflight safety investigations to prevent further accidents without apportioning blame or liability. The purpose of having an independent authority is to avoid any conflicts of interest and external influence in the conduct of an accident investigation.

Key terms

1.15 The Act regulates:

- space activities
- sub-orbital activities and
- associated activities

that are carried out in the UK.

1.16 As set out in [section 1 of the Act](#), “space activity” means

- (a) launching or procuring the launch or the return to earth of a space object or of an aircraft carrying a space object
- (b) operating a space object, or
- (c) any activity in outer space

1.17 “A space object” includes the component parts of a space object, its launch vehicle and the component parts of that.

1.18 “Sub-orbital activity” means launching, procuring the launch of, operating or procuring the return to earth of:

- (a) a rocket or other craft that is capable of operating above the stratosphere
- (b) a balloon that is capable of reaching the stratosphere carrying crew or passengers, or
- (c) an aircraft carrying such a craft

but does not include space activity. By way of clarification, the regulator will use the International Standard Atmosphere (47km) as the stratopause (i.e. the upper limit of the stratosphere) for the purposes of determining whether an activity is ‘sub-orbital’.

1.19 Space activities and sub-orbital activities are referred to in the Act as “spaceflight activities”.

1.20 “Spacecraft” means a space object, a rocket or other craft that is capable of operating above the stratosphere or a balloon that is capable of reaching the stratosphere carrying crew or passengers, that is used for spaceflight activities. It includes satellites.

1.21 “Launch” is defined in the Act as including causing a craft to take off (or releasing a balloon).

1.22 [Regulation 2](#) of the Space Industry Regulations defines a launch vehicle, other than in references to a “US launch vehicle”, as:

- “(a) a craft to which section 1(5) of the Act applies and the component parts of that craft, or
- (b) a space object which is a vehicle and the component parts of that vehicle,

that is used for the purpose of the proposed spaceflight activities or the operator’s spaceflight activities, as applicable, but does not include a payload carried by the launch vehicle;”

1.23 The “craft to which section 1(5) of the Act applies” referred to in part (a) of this definition are:

- a rocket or other craft that is capable of operating above the stratosphere
- a balloon that is capable of reaching the stratosphere carrying crew or passengers

- 1.24 Part (b) of the definition covers vehicles that are capable of reaching orbit, such as those used to place a satellite payload in orbit. As explained below, the operator of any satellite carried on board a launch vehicle does not require their own launch operator licence, but does require an orbital operator licence.
- 1.25 Associated activities include the operation of spaceports and range control functions.
- 1.26 Under the Act, any site from which a spacecraft or carrier aircraft is intended to launch is considered a spaceport, and must be licensed. A site at which controlled and planned landings of spacecraft are to take place is also a spaceport and must be licensed.
- 1.27 Range control services are defined in [section 6](#) of the Act as:
- “(a) identifying an appropriate range for particular spaceflight activities;
 - (b) co-ordinating arrangements for the activation and operation of the range;
 - (c) obtaining all necessary information for identifying the range and for co-ordinating its activation and operation;
 - (d) ensuring that notifications are issued for the protection of persons who might be put at risk by spacecraft or carrier aircraft within the range or in the vicinity of it;
 - (e) monitoring the range, and the spacecraft or carrier aircraft for which it is provided, to ascertain
 - (i) whether the restrictions or exclusions to which the range is subject are complied with;
 - (ii) whether planned trajectories are adhered to;
 - (f) communicating any failure to comply with those restrictions or exclusions, or to adhere to those trajectories, for the purpose of enabling any appropriate actions to be taken in response;
 - (g) any prescribed services provided for the purposes of, or in connection with, services within any of paragraphs (a) to (f).”
- 1.28 Under [section 13\(1\) of the Act](#), the regulator has the power to include conditions in an operator licence (launch operator licence, return operator licence and orbital operator licence), spaceport licence and a range control licence. Licensees must comply with those conditions. [Schedule 1 of the Act](#) includes a list of examples of conditions, but this is not exhaustive, and the actual conditions included in a licence will vary depending on the operation planned and the type of licence issued. When deciding what conditions to include in a licence, the regulator must consult the public bodies, including the Health and Safety Executive, listed in [section 13\(6\) of the Act](#). Whenever the guidance refers to the regulator imposing conditions (other than a condition which the regulator is required to impose via the Regulations under section 13(3)), the obligation to consult these bodies applies.

Carrying out spaceflight activities at sea

- 1.29 If a person is proposing to launch or carry out other spaceflight activities from UK territorial waters or from a UK flagged ship elsewhere, the Act and Regulations will regulate the activities. Where appropriate, regulations which refer to land also apply to spaceflight activities from a ship – for example, where a regulation refers to a “place” or “other place” from which activities take place, in addition to activities from land. If a person is proposing to launch or carry out other spaceflight activities from a foreign flagged ship outside UK territorial waters and is a