UK Civil Aviation Authority

Guidance for spaceport licence applicants and spaceport licensees

CAP 2212

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Chapter 1

Introduction

1.1 This guidance document explains how to apply for a spaceport licence under the Space Industry Act 2018 (SIA). It tells you about how we will assess your application and how long an application can take. It also summarises the duties you will have as a spaceport licensee, if your application is successful.

1.2 A spaceport is a site that is used for:

- vertical launches of rockets that are intended to go above the stratosphere
- horizontal launches, using aerodrome runways, of spaceplanes or carrier aircraft from which a space object will be released.
- launches of high-altitude balloons for space experience, experiments or air-launch of rockets
- planned landings of spacecraft, including launch vehicles.

1.3 Spaceports can be licensed for vertical or horizontal launches, or potentially both. If you want to host horizontal launches, the spaceport must be located at an aerodrome that is already either licensed or certified by the Civil Aviation Authority (CAA) and directed under the National Aviation Security Programme (NASP).

1.4 Whatever type of launches or landings you want to host, you must follow the same core application process. The differences are in the amount and type of information you will be required to provide in your application.

If you have questions about any of the matters covered in this guidance document, please contact the CAA spaceflight team, by emailing commercialspaceflight@caa.co.uk.

Requirement to obtain a licence

1.5 Under the SIA, if you want to carry out space activities, suborbital activities, and associated activities in the UK, you must get a licence.

1.6 There are different types of licence covering different activities.

- If you want to operate a spaceport, then you need a **spaceport licence**
- If you want to provide range control services in relation to spaceflight activities, then you need a **range control licence.**

- If you want to launch a launch vehicle from the UK (including UK territorial waters) above the stratosphere, you need a **launch operator licence**. The same licence can cover a single launch, or a series of launches.
- If you want to return a vehicle that was launched into orbit from outside the UK to land in the UK, you need a **return operator licence.**
- If you want to operate a space object in orbit, or conduct other activity in outer space, then you need an **orbital operator licence**. The most common example of activities that would be licensed under an orbital operator licence are the procurement of a satellite launch and the operation of a satellite.

1.7 If you want to carry out different licensed activities – for example, to operate a spaceport and provide range control services – you will need to apply for separate licences for each activity.

1.8 If you are proposing to host launches on a ship or platform at sea within UK territorial waters, or on a UK-flagged ship outside UK territorial waters, you don't need to apply for a spaceport licence. However, the launches would still be regulated under the SIA and Space Industry Regulations 2021. You are strongly advised to contact us about your proposals as early as possible, by emailing commercialspaceflight@caa.co.uk.

How to get a licence

1.9 To get any of these licences, you need to apply to the CAA. We are the UK's spaceflight regulator. There is no charge for applying for a spaceport, range control, launch operator or return operator licence.

1.10 The application process is slightly different for each licence type, but there are some core requirements.

1.11 This guidance document explains how to apply for a spaceport licence and what information you have to provide. It also tells you about how we will assess your application and how long an application can take.

1.12 This document is written for people and organisations applying for a spaceport licence. Because of the link between spaceport operations, range control activities and launch activities, it may also be of interest to applicants for a launch operator or range control licence.

Our approach

1.13 As the regulator we enable space activities which are safe for the public, in line with UK national security and interests and meet the UK's international obligations.

1.14 To do this, we review a range of information about your organisation and the space activities you want to undertake. The information we require as part of your application is set out in the Regulator's Licensing Rules. We need to understand how you propose to undertake those activities, and what steps you will take to ensure that the risks associated with the activities are as low as reasonably practicable. We know that there are lots of different approaches, so we examine each application individually, focusing on the outcomes you are trying to achieve and how well you demonstrate you can achieve those.

1.15 We are keen to help applicants provide the right information. So, we strongly encourage you to contact us before you apply and talk to us about your plans. In this pre-application phase, we can provide a range of support and guidance, including workshops on key aspects of the application.

1.16 Once you have applied, we may need further information and are likely to ask you additional questions about your proposals. We may want to examine documentation, visit sites, see prototype launch vehicles or get demonstrations of technology and systems you propose to use. Our rights to do this are set out in the SIA and Space Industry Regulations. We will treat all information you give us as commercially sensitive.

1.17 Once you get a licence, you are responsible for ensuring your spaceport activities continue in line with your application. You can read more about what this means in chapter 4 of this guidance.

1.18 We will conduct regular monitoring and inspections to check everything is going as planned for your spaceport activities. We do have enforcement powers, which we can use if we identify that anything is going ahead that was not in line with the approved plans, or where we have reasons to be concerned about safety.

What you need to know

1.19 This document is intended for guidance only. You should read it alongside the SIA, the Space Industry Regulations and the Regulator's Licensing Rules.

1.20 For full definitions of some of the terms used in this guidance, see the SIA and the Space Industry Regulations, in particular regulation 2. However, there are some definitions elsewhere in the SIA and Regulations.

1.21 This guidance focuses on what applicants and licensees are required to do under the SIA and Space Industry Regulations. Depending on what activities you are planning, you may also be required to meet requirements under other laws and regulatory regimes. During the pre-application phase, we can highlight which other issues may be relevant to your activities, though we can't advise you on how to meet other regulators' requirements.

1.22 To support launches from your spaceport, you may be considering applying for an airspace change, temporary restriction or Temporary Danger Area (TDA). Some proposals will need to be consulted on, and there may be fixed dates that determine when a change can be formally notified. Other national authorities may also need to be involved. It could take longer to successfully apply for an airspace change or restriction than for the space licence itself. The process to apply for an airspace change is managed by the CAA's Airspace Regulation Team and is set out in more detail in CAP1616 Airspace Change.

Chapter 2

Applying for a spaceport licence: overview

What you will need to do

2.1 When applying for a spaceport licence, you will need to:

- complete the online application form, including providing details of your company's legal status and financial and technical resources. This is covered more in the separate guidance document, Applying for a licence under the SIA (CAP2209).
- produce a **safety case** that, among other things:
  - describes in full the type of launches and/or landings you propose to host
  - provides details of the proposed spaceport site and its vicinity
  - identifies the major accident hazards that could arise during licensed activities, including in the handling and storage of hazardous materials and any testing and preparation for launches
  - assesses the likelihood of major accidents arising from these hazards and describes the prevention and mitigation measures you would take to ensure that the risks identified are as low as reasonably practicable
  - identifies whether, based on the above points, you would need to put in place a **safety clear zone** for any spaceflight activities – and if so, how you would define the extent of that zone and how you would manage it.
- conduct a **siting assessment**, to assess the risks to members of the public from the proposed spaceflight activities, based on the actual or proposed launch vehicle characteristics, proposed trajectories, and local land use. This must result in a numerical estimate of the annualised risk of death or serious injury to members of the public posed by the proposed spaceflight activities.
- submit a draft cyber security strategy and draft space site security programme, plus the risk assessments on which these are based. These should not be submitted via the CAA's online portal. Please contact commercialspaceflight@caa.co.uk to arrange how your information will be delivered to the security assessment teams.
- undertake an **assessment of environmental effects**. The requirements for this are covered in a separate guidance document, Guidance for the assessment of environmental effects (CAP2215).

- provide information about the individuals who will be in the following prescribed roles:
  - accountable manager
  - safety manager
  - security manager.

Additional requirements for spaceports hosting horizontal launches

2.2 A spaceport for horizontal launches must be located at a CAA certified or licensed aerodrome. This certification/licensing demonstrates that the proposed spaceport has the appropriate infrastructure, equipment and services to support horizontally-launched spaceflight activities.

2.3 If your proposed site is not a certified or licensed aerodrome, you must obtain a licence or certification before you can apply for a spaceport licence. For further information on obtaining a certification or a CAA licence, see Aerodrome licences and certificates | Civil Aviation Authority (caa.co.uk).

2.4 You can still approach us and discuss other aspects of a spaceport licence application before you have obtained certification or a licence for an aerodrome. However, you cannot apply.

Working with other licensees

2.5 You can apply for a spaceport licence:

- **either** based on the operations of a licensed launch or return operator, or the proposed operations of a launch operator / return operator licence applicant
- **or** based on the types of launches and / or landings you would propose to support.

2.6 You may also apply based on a mix of both categories.

2.7 If your application involves known launch or return operations, your spaceport safety case and siting assessment must be based on those operations. You will therefore need to obtain relevant details from the operators / licence applicants.

2.8 Launch operators are also required to produce a safety case as part of their application, and keep it updated after they are granted a licence. To do this, they may require information from you.

2.9 Though there is likely to be some overlap between a launch operator's safety case and a spaceport's, they should not be the same. This is because each organisation has to identify and respond to different risks in demonstrating how they will make the overall risk of their operations as low as reasonably practicable (ALARP).

Use of agents

2.10 If you are considering using an agent as a third party to carry out specific activities on your behalf – you must provide details of them in your application, including:

- a detailed description of the activities that the agent will carry out and evidence that they are capable to carry out the activities, and
- any applicable agency contracts.

2.11 If you use an agent, you, as the licence holder, are ultimately responsible for ensuring they can provide the specified services to the correct specification and service level agreed.

Duties after you get a licence

2.12 If you get a spaceport licence, there are some additional things you must do to remain compliant with that licence. These include:

- reviewing the safety case on an ongoing basis, and informing us of certain proposed changes to your operations **before** they are implemented
- providing us with specific information relating to the launch operations you will be hosting. This refers to information that was not available, or not confirmed, at the time you applied for a licence – some of which may necessitate a review of the safety case
- putting in place appropriate safety clear zones for any relevant activities
- designating appropriate areas for the safe storage, handling and venting of any hazardous materials and the conduct of static engine or other tests, and then putting in place any necessary controls
- putting in place a safety management system that meets the requirements in Schedule 4 of the Regulations
- producing a spaceport manual covering all the matters detailed in Schedule 8 of the Regulations, keeping it updated and ensuring all staff are aware of any procedures and requirements in the spaceport manual that are relevant to their role
- developing an emergency response plan, reflecting the safety case
- maintaining appropriate and proportionate levels of security at the spaceport
- establishing a training programme and ensuring that all individuals involved in providing spaceport services have participated in it, to a level appropriate to their role, and have been assessed as being competent.

2.13 These duties are covered in chapter 6.

Legislative background

2.14 A spaceport is defined in section 3(2) of the SIA as:

> "(a) a site from which spacecraft or carrier aircraft are launched or (as the case may be) are to be launched, or
>
> (b) a site at which controlled and planned landings of spacecraft take place or (as the case may be) are to take place".

2.15 Section 10 of the SIA makes clear that we can only grant a spaceport licence if we are satisfied that an applicant "has taken all reasonable steps to ensure that risks to public safety arising from the operation of the spaceport are as low as reasonably practicable", and that any additional prescribed criteria or requirements are met.

2.16 The requirement for any applicant for a spaceport licence (or launch operator licence) to conduct an assessment of environmental effects as part of their application is in section 11 of the SIA.

2.17 The requirements for applicants for a spaceport licence are covered in Part 5 of the Regulations, "Grant of a spaceport licence". These include the requirement to produce a safety case, conduct a siting assessment and demonstrate your capacity to put in place a safety clear zone.

2.18 The duties of a spaceport licensee are set out in Part 10 of the Regulations.

2.19 Security requirements for all licensees are detailed in Part 11 of the Regulations

Health and safety legislation

2.20 There is a range of health and safety legislation and regulation that may be relevant to the operation of spaceports. This includes:

- Health and Safety at Work etc. Act 1974 and relevant statutory provisions
- Management of Health and Safety at Work Regulations 1999
- Provision and Use of Work Equipment Regulations 1998
- Control of Substances Hazardous to Health Regulations 2002
- The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR)
- The Explosives Regulations 2014
- The Control of Major Accident Hazards Regulations 2015 (COMAH)
- Town and Country Planning (Hazardous Substances) (Scotland) Regulations 2015.

2.21 You will need to consider which of the requirements in these regulations apply to you and what requirements may apply to launch operators operating from your spaceport. This is especially relevant where spaceflight activity may involve the storage and handling of explosives to operate the launch vehicle. You need to be clear what you will be responsible for and what you are expecting the launch operator to be responsible for. Some launch operators may not have an adequate understanding of the requirements that apply to them especially if they are based outside the UK.

2.22 During the pre-application phase, we can highlight which health and safety regulations may be relevant to your activities, though we can't advise you on how to meet these requirements.

2.23 Health and safety matters in the workplace are regulated in the UK by the Health and Safety Executive (HSE). It provides further guidance on how to meet responsibilities under these different regulations. A central part of this is the appointment of a competent person to help meet your health and safety legal duties.

2.24 We strongly advise you to review the requirements for an HSE Competent Person to ensure you understand what regulations apply to you, how you apply for any HSE relevant licences, certificates and approvals and critically, how long applications may take. Failure to apply for such licences etc. in good time may seriously delay your ability to conduct operations from your spaceport.

2.25 You may also find this additional document of use in understanding the safety issues around operating a spaceport: Spaceports: keeping people safe.

Other relevant legislation

2.26 The following regulations/legislation may also be relevant to any application for a spaceport licence:

- Licensing of Aerodromes (CAP168), which applies to any proposed horizontal spaceport
- The Civil Contingencies Act 2004 and associated regulations, which are relevant to emergency response plans.

Chapter 3

Applying for a spaceport licence: full requirements

3.1 To apply for a spaceport licence, you will need to:

- complete the online application form, including providing details of your company's legal status, financial and technical resources. The form is available through https://portal.caa.co.uk/. You have to register with the CAA to get access to the portal. For more details of what is required in completing this online application form, read the separate guidance on Applying for a licence under the Space Industry Act 2018 (CAP2209).
- submit the additional information required for a spaceport licence application:
  - a safety case
  - a siting assessment
  - an assessment of environmental effects
- provide information about the individuals you propose to appoint to the following key roles, known as prescribed roles:
  - accountable manager
  - safety manager
  - security manager.

3.2 This chapter provides more details on the requirements that are specific to a spaceport licence application.

If you have any questions about what's required, or how to demonstrate your organisation's ability to meet our expectations, please contact us by emailing commercialspaceflight@caa.co.uk.

Safety case

3.3 The safety case is the main way an applicant for a spaceport licence identifies potential hazards and risks at the spaceport and demonstrates how those risks will be managed. The aim of it is to show us that you have identified and understood the hazards associated with spaceport operations, taken relevant steps to manage the risks arising from those hazards so that they are reduced to as low as reasonably practicable, and that the residual risk is acceptable.

3.4 A safety case is an evolving, working process which should be referred to, and regularly updated when the operation or the context changes to assure continued safe performance of the activity.

3.5 Among other things, you will need to show that you have:

- identified all potential major accident hazards at the spaceport, including those from storing and handling hazardous materials and testing, as well as those that might arise during launches
- assessed the likelihood of a major accident resulting from any of these hazards
- considered the severity of the consequences of any such major accident
- identified relevant and appropriate mitigation measures to manage those risks so that they are as low as reasonably practicable. These don't need to be in place at the time you're applying, but you will need to indicate how you would put them in place at the relevant time.

3.6 Your safety case should reflect your planned operations. For example, if you are applying for a licence to conduct a series of launches, this should be reflected in your safety case.

3.7 You should also take into account the interests of other users of the spaceport. For example, if you are proposing to set up a spaceport at an aerodrome, you would be expected to consider the interests of other aerodrome users in your safety case.

3.8 The focus of the safety case should be on the management of potentially catastrophic events rather than on minor risks.

3.9 When we review it, it will be an iterative process. You may be required to update the safety case and take extra steps, until you are able to provide a compelling demonstration that the risks have been reduced to as low as reasonably practicable.

3.10 Regulation 36 sets out the minimum requirements for a safety case for a spaceport, but it does not prescribe how you should fulfil these requirements. The guidance here is intended to help you structure your safety case and understand the type and level of detail we might need. It is based on the approaches taken in other regulatory regimes that require the submission of a safety case, and divides the safety case into four parts:

- site, environment, and management information
- identification and assessment of major accident hazards
- measures to prevent or limit the consequences of a major accident

- demonstrating that the risk is managed to ALARP (and any residual risk is acceptable).

3.11 You do not need to use this four-part structure in compiling your own safety case, but it may be a good basis.

We can offer applicants for a spaceport licence a safety case workshop, in which our experts talk through the requirements in more detail. Email commercialspaceflight@caa.co.uk to find out more.

Site, environment and management information

3.12 Regulation 36(4) lists the information you must provide about your proposed spaceport, its immediate surroundings and the types of launches you would host. The aim of collating this information is to assist in the identification of potential hazards at the proposed spaceport. The following paragraphs provide more details on the information we would expect to see under each of the points in the regulation.

Spaceport infrastructure & licensed activities

3.13 The first thing you're required to provide is "a description of the proposed spaceport." This is likely to be a combination of written text and appropriately scaled plans which clearly identify key infrastructure, boundaries and any physical barriers or relevant geographical features.

3.14 The focus of the description should be on what is important from the point of view of safety: in practice, this means the sources of major accident risks and the areas at risk if there was a major accident.

3.15 If you're applying to host horizontal launches, you must also include a description of the aerodrome and plans of the aerodrome showing relevant infrastructure.

3.16 You should clearly differentiate between existing infrastructure and facilities and any planned new infrastructure and facilities.

3.17 If your intended security measures to ensure the spaceport is secure from unauthorised access include placing a temporary or permanent physical barrier around the site, you should also mark that on relevant maps or plans. See the separate document Guidance on security matters for applicants and licensees (CAP2217) for more details.

Environment around the spaceport

3.18 As well as describing the spaceport itself, you must provide a description of the environment around the spaceport (see regulation 36(4)(c)). This must include the natural and built environment in the vicinity of the spaceport as well as

anywhere people, particularly vulnerable people[1], may be living and working, or where large numbers of people may gather. This same information is likely to be needed for the assessment of environmental effects; see the Guidance for the assessment of environmental effects (CAP2215) for more details on what may be considered relevant.

3.19 You should provide appropriately scaled maps of the area that could be affected by major accidents. These should show the spaceport boundaries and how the surrounding land is used.

Launch vehicles and spaceflight activities planned

3.20 Under regulation 36(4)(e), you must provide a description of the spaceflight activities that are likely to be carried out from the spaceport – in other words, the types of launches you intend to host.

3.21 Where possible, you should use details of the actual launch vehicle, or vehicles, that will be used, and the intended frequency of launches, as well as any hazardous materials that will be used. This is likely to involve getting information from the prospective launch operators

3.22 If you don't know the intended launch vehicle, you must base your safety case on the launch of a representative vehicle, or vehicles, plus the intended frequency of launches. For example, if you intend to host vertical launches, you should base your safety case on the intended size/class of rockets. You will need to provide a description of these representative vehicles.

Propellants and other hazardous materials

3.23 In your safety case, you should include an inventory of all propellants, and other hazardous materials, that will be stored or used at the spaceport. If you are basing your safety case on representative launch vehicles, rather than known launch vehicles, you will have to make reasonable assumptions about these and explain how you have reached those assumptions.

3.24 Your inventory should include:

- the classification of each material under www.hse.gov.uk/chemical-classification/legal/clp-regulation.htm; the chemical name; its Chemical Abstracts Service (CAS) registry number; and its name according to International Union of Pure and Applied Chemistry (IUPAC) nomenclature
- the hazard type of each material (if applicable – see The Explosives Regulations 2014)

[1] In this context, vulnerable people are those who by virtue of age (children and elderly) and/or ill health may be particularly susceptible to the effects of a major accident.

- the maximum quantity of each hazardous material present or likely to be present
- the physical, chemical, toxicological characteristics and indication of hazards, both immediate and delayed, to human health
- the physical and chemical behaviour of these materials under normal conditions of use and under foreseeable accident conditions.

Safety management system

3.25 If you are granted a spaceport licence, you will have to put in place a safety management system that meets the requirements set out in Schedule 4 of the Regulations. This is not required at the point of application. However, when you're applying for a spaceport licence, you will need to explain how you propose to deliver important aspects of the safety case, such as:

- how you will ensure co-operation and co-ordination with any other licensees or other organisation with whom the spaceport must interact during the provision of licensed activities
- how you will monitor the validity of assumptions made in the hazard identification and risk assessment process
- how you will continually monitor risk control effectiveness and the performance of the control measures
- how you will ensure that the control measures are not compromised

3.26 The explanations you give in your application should then form the basis of your safety management system.

3.27 Further guidance on developing and adhering to a safety management system is included in chapter 4 of this guidance, from paragraph 4.20.

Identification and assessment of major accident hazards

3.28 In your safety case, you need to:

- identify all potential major accident hazards at the spaceport, including those from storing and handling hazardous materials and testing, as well as during actual launches
- assess the likelihood of a major accident resulting from any of these hazards
- consider the severity of the consequences of any such major accident.

3.29 The purpose of this process is to enable you to take relevant steps to mitigate the risks, so they are ALARP.

3.30 The depth of the analysis should be proportionate to the hazards and risks presented by the operation of the spaceport.

3.31 A hazard is anything that has the potential to cause harm to people, public property or the environment. As a minimum, you should identify hazards in the following categories:

- **Hazards in the immediate vicinity**
  This refers to people, infrastructure and facilities in the area where the main licensed activities would take place. It covers not only launches and landings, but also testing.
- **Hazards to those on land**
  This specifically refers to third parties who are on the land and not involved in the spaceport activities – so people living and working in the area around the spaceport, and potentially other users of the aerodrome.
- **Hazards at sea**
  This covers maritime users and vessels in areas that could be affected by a space launch or landing.
- **Hazards in the air**
  This covers all users of the air, including commercial, military, and private air users that could be affected by the spaceport operations.

3.32 For each major accident hazard you identify, you should provide a clear description of what the hazard is and the specific circumstances in which a major accident could occur, as far as you are aware of them. You should also take into account:

- human factors in the initiation, prevention, control and mitigation of the hazards and risk
- the security risk assessment, as described in the separate document Guidance on security matters for applicants and licensees (CAP2217).

3.33 Having described the hazard, you then need to assess the likelihood of it occurring, and the severity if it does occur. This is a qualitative or semi-quantitative risk estimate: you do not have to provide a numerical estimate of each risk.

3.34 As well as presenting the outcomes of your analysis, you should also describe how you have conducted the analysis. We will want to see evidence of a systematic and rigorous methodology, that provides assurance no major accident hazards have been missed.

3.35 There are numerous established approaches that can be used in identifying and assessing hazards. You could use some, or all, of the following:

- Facilitated brainstorming
- Failure Modes, Effects and Criticality Analysis (FMECA)
- Hazard and Operability Studies (HAZOPs)
- Event Trees
- Goal Structured Notation (GSN)
- Hazard Logs
- Determination of the required level of confidence for evidence.

You can find more information on these methods in the appendices to the CAA publication Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases: For Aerodrome Operators and Air Traffic Service Providers (CAP760).

3.36 Once you have identified the different hazards, a risk matrix can be a useful tool to define the overall level of risk for each. Such a matrix typically maps the probability of a hazard occurring against the severity of the impact if it did.

3.37 This can then help you determine which hazards need to be addressed as the highest priority and what level of mitigation measures you should take.

3.38 You do not need to submit all of the analyses you conduct as part of your safety case, which should focus on the main results. However, where an assessment is based on a specific analysis, you should refer to it. We can then ask to see the supporting evidence for your assessment.

Measures to prevent or limit the consequences of a major accident hazard

3.39 Building on your assessment, your safety case then needs to explain the measures you have adopted, or will put in place, to manage the identified risks. These can include:

- optimising the layout of the spaceport, so that – for example – higher risk activities would take place at a safe distance from hazardous materials, or areas where people may be located
- using, or building, dedicated facilities for certain tasks, such as for the storage of hazardous materials
- putting in place Safety Clear Zones when specific activities are taking place. The requirements around Safety Clear Zones are detailed further in paragraphs 3.51 to 3.57

- developing relevant safety procedures and detailing how you will ensure they are followed (for example, through documentation in a safety management system, training, communication procedures including with third parties etc.)
- installing or making available relevant safety equipment to help respond to a major accident and limit the severity. This could include firefighting equipment, tools to assist with chemical spills, etc.

3.40 In your safety case, you should describe:

- what mitigation measures relate to which risks – there will often be more than one measure per risk
- how each mitigation measure is expected to work
- how the proposed measures together will either prevent a major accident from occurring or minimise the impacts if a major accident did occur.

3.41 You might find it useful to consider the requirements of regulations 158 to 162 when describing these mitigation measures.

3.42 You should clarify whether a mitigation measure is already in place – e.g. a suitable facility for storage of hazardous materials exists – whether it would need to be built or applied before operations commenced, or whether it would be put in place solely for the duration of specific activities.

3.43 We recognise that spaceports may not be responsible for implementing all the mitigation measures; some may depend on launch operators, or range control service providers. In your safety case, you should clearly set out the roles and responsibilities of each licensee regarding mitigations.

3.44 You don't have to include a comprehensive emergency response plan in your safety case: you are only required to prepare such a plan after you have got a licence. However, in your safety case you must:

- outline the emergency arrangements that will be put in place to limit the consequence of the major accident scenarios identified, and
- indicate the responsibilities of the emergency services.

Demonstrating that the risk is managed to ALARP

3.45 We can only grant a spaceport licence if we are satisfied that the applicant has taken all reasonable steps to ensure that the risk to public safety arising from the operation of the spaceport is ALARP. Your safety case is pivotal to enabling us to do this.

3.46 As well as setting out the mitigation measures you are proposing to take, you should also indicate what more could possibly be done and why you have determined that these extra steps are not reasonably practicable. A useful way to

set this out is by reference to the hierarchy of control and mitigation measures, as shown in Figure 1.

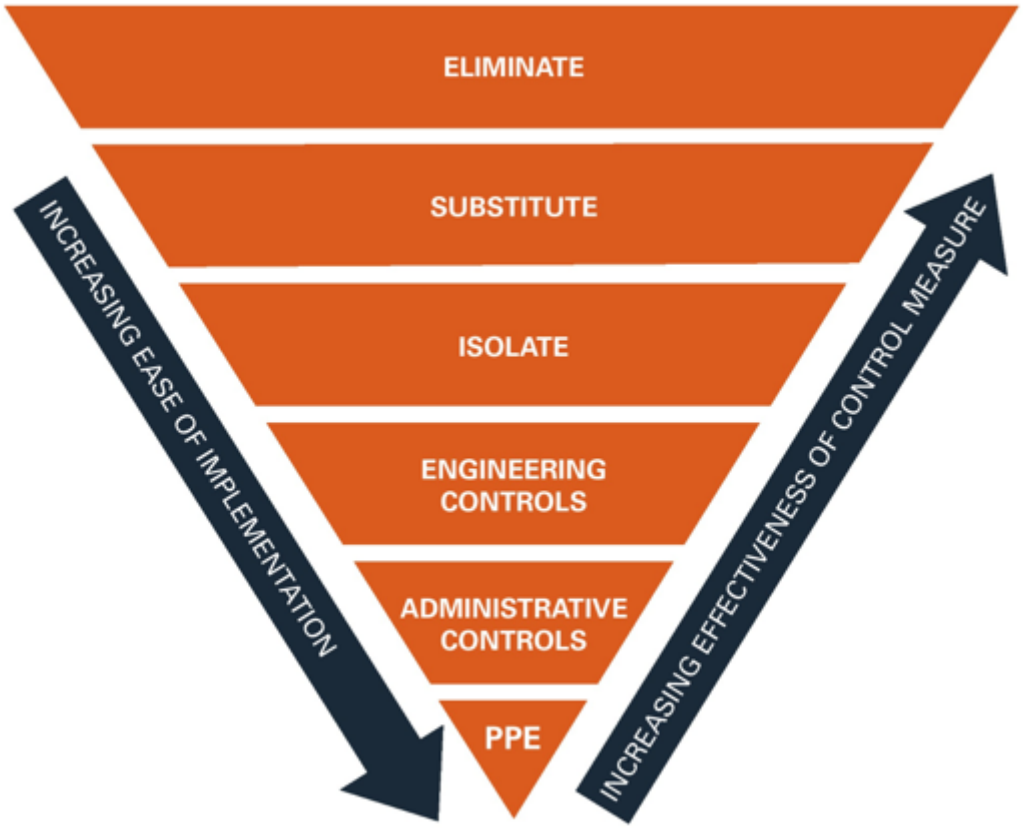

Figure 1: Hierarchy of control and mitigation measures[2]

3.47 In line with this, you should specifically consider:

- the scope for hazard elimination
- the adoption of inherently safer designs
- whether good practice has been adopted
- the application of risk-reducing measures where relevant good practice is not yet established
- the functionality, availability, reliability, independence, survivability, compatibility and maintainability of mitigation measures

3.48 Where you have identified additional potential measures, but chosen not to implement them, it is up to you to demonstrate that the cost of any additional

[2] PPE here refers to personal protective equipment.

measures (in terms of money, time or trouble) would be grossly disproportionate to the further risk reduction that would be achieved.

3.49 Further information on the requirements to demonstrate that the risks have been managed to be ALARP can be found in our ALARP acceptability policy (CAP2220).

Safety clear zone

3.50 One of the primary mitigation methods for major accident hazards at spaceports is the establishment of a safety clear zone. This is a zone to which access is restricted for safety reasons during relevant activities pre-flight, at launch, in flight and post-flight. These activities can include:

- propellant loading
- testing, including static engine testing
- launch
- landing.

3.51 The purpose of setting up a safety clear zone is to ensure that the risk to any person from blast overpressure, fragmentation debris, thermal radiation or toxic release is ALARP.

3.52 In your licence application, you must identify whether a safety clear zone is required for any of your proposed activities. Your decision should be based on your analysis of the major accident hazards.

3.53 If you determine that a safety clear zone is required, then in your application you must:

- define the dimensions of the safety clear zone on the ground, at sea and potentially including any airspace
- stipulate the activities that require a safety clear zone and the times at which it will be in place
- set out the measures you will take to ensure that it is in place, is monitored and how you will enforce it. Some of the monitoring and enforcement measures may be based on your security programme.

3.54 You may need to define different safety clear zones for different activities.

Determining the size of a safety clear zone

3.55 In your safety case, you should provide a description of the methodology you will use, or have used, for defining the dimension of any safety clear zone to be implemented. The methodology should include the relevant hazardous materials, their characteristics, and the effects, if the reasonable worse case major accident

hazard occurred. The dimensions of the safety clear zone should be related to the potential consequence of this major accident hazard. You should also set out why further increases in the size of the safety clear zone are grossly disproportionate to the potential for reduction of risk outside the safety clear zones.

3.56 Methods to define the dimensions of a safety clear zone may include:

- the use of consequence modelling of the major accident hazards to evaluate the reduction of risk of the safety clear zone, and/or
- international standards.

You should provide evidence of how the modelling, or adherence with accepted international standards, realistically represents the consequence of that major accident hazard and evaluates the residual risk.

3.57 As with other elements around spaceport safety, your approach to determining the size of a safety clear zone (if required) should be consistent with the major accident hazards associated with the actual launch vehicle(s), if you know them, or those associated with the representative launch vehicle.

Issuing and managing restrictions, exclusions and warnings

3.58 The restrictions, exclusions and warnings that are applied to a safety clear zone will differ depending on the activity that is being carried out. For example, in some cases, it may be necessary to prevent anybody entering the safety clear zone. In other cases, it will be sufficient to restrict unauthorised access to the zone, but permit an authorised spaceflight operator or spaceport operating staff to carry out essential activities. In your application, you should detail what restrictions you would apply and how you would enforce them.

3.59 You will also need to set out how you will provide notice of a safety clear zone coming into effect. For a safety clear zone within the spaceport, it may be sufficient to notify other spaceport staff and users, at relatively short notice. However, where the safety clear zone extends beyond the spaceport, including any roads, private land or property – for example, for a launch – it may be necessary to provide notice earlier and to a wider group of people and organisations.

Siting assessment

3.60 In addition to producing a safety case, applicants for a spaceport licence must conduct a siting assessment. This requires you to assess the risks to members of the public from the proposed spaceflight activities, based on the actual or proposed launch vehicle characteristics, proposed trajectories, and local land use.

3.61 The siting assessment must be carried out at the time of the licence application, to demonstrate that the site is a suitable location to conduct spaceflight activities.

3.62 As set out in regulation 38, the siting assessment must result in a numerical estimate of the annualised risk of death or serious injury to members of the public posed by the proposed spaceflight activities. This estimate must be based on the total proposed number of launches in a year and, where more than one spaceflight operator will use the spaceport, be based on all proposed launches.

3.63 We consider both individual risk (IR) and societal risk (Expected casualties, Ec) when assessing whether the level of risk is acceptable, applying the criteria set out in our ALARP acceptability policy (CAP2220). You are expected to provide both, in a numerical format, with your application.

3.64 Individual risk is a measure of the likelihood that a hypothetical person at each given location would be harmed from a hazardous event. It is used to contextualise the annualised risk of the proposed operations, typically by looking at the maximum IR at any given location.

3.65 Societal risk, in the form of expected casualties, is a measure of the average number of people that would be harmed in the activity. In itself, Ec is not a measure of the risk of death to a single individual. Societal risk is used to complement IR, by identifying where an unacceptably high number of people may be exposed to the proposed activities.

3.66 In addition to the figures for IR and Ec, you should provide us with an explanation of how you have reached these figures. This explanation should include the methodology you have used and detail how you have set the parameters. It should also justify any assumptions.

3.67 We do not mandate a specific methodology for demonstrating that the site is suitable for the proposed spaceflight activities. However, you should demonstrate how the method chosen is effective for producing an estimate of the annualised risk at the proposed location and demonstrate the validity of the risk estimate the method provides.

3.68 As with other areas of your application, if your application involves known launch or return operations, your siting assessment must be based on those operations. You will therefore need to obtain relevant details from the operators / licence applicants.

3.69 If you don’t know the intended launch vehicle, you must base your siting assessment on the launch of a representative vehicle, or vehicles, plus the intended frequency of launches. This should be the same vehicle(s) as those you used for your safety case.

3.70 If you know one or more launch or return operators you propose to host, but may wish to host others too, then your siting assessment will need to address all of them.

Other requirements of a spaceport licence application

Assessment of environmental effects

3.71 When you submit your application for a spaceport licence, you must include an assessment of environmental effects.

3.72 This is a substantial task and must be compiled by competent experts in this field. Your assessment of environmental effects must be of publishable quality and will be subject to public consultation. You are strongly advised to begin this process as early as practical in planning your application.

3.73 There is a separate guidance document explaining more about what is required: see Guidance for the assessment of environmental effects (CAP2215).

Prescribed roles: accountable manager, safety manager and security manager

3.74 Under Section 18 of the Act, licensees must have suitably qualified people in specified roles relating to spaceflight activities. For a spaceport licence, these roles are

- accountable manager
- safety manager
- security manager.

3.75 When you are applying for a spaceport licence, you must provide details of the individuals you have appointed, or are intending to appoint, to these roles. This includes information about their qualifications and experience, as well as confirming they meet the eligibility criteria set out in regulations 5 and 6.

3.76 You can appoint the same individual to more than one of these roles.

Security

3.77 When applying for a spaceport licence, you are required to submit:

- a draft space site security programme, based on a security risk assessment
- a site plan, including proposals for security restricted and controlled areas, where applicable
- a cyber security strategy for the proposed operation, based on a cyber security risk assessment and

- details of a nominated security manager, responsible for the implementation of security measures.

3.78 The extent and detail of your risk assessment should be appropriate and proportionate to the risks identified with the activities taking place. We can provide more guidance on this at the pre-application stage.

3.79 For horizontal spaceports, the draft space site security programme may be produced as an annex to the existing aerodrome site security programme.

3.80 For spaceports, a primary security requirement relates to ensuring that the site is secure from unauthorised access. This might include the use of physical barriers plus security controls for access to the site as a whole, and to specific areas of the site. For example, a space site security programme should set out how carrier aircraft, launch vehicles and payloads will be protected from unauthorised access or interference at a spaceport, both pre- and post-integration.

3.81 Security restricted areas include all areas at space sites designated for range control services, including where tracking systems, surveillance systems, telemetry systems and meteorological equipment is stored. Controlled areas are space site security restricted areas, that have been designated as such, where US technology, data and equipment is being used, and US launch activity is taking place. The applicant or licensee who owns/manages the site is required to identify the location and size of all proposed controlled areas.

3.82 Regulation 174 sets out specific requirements around access control to both restricted and controlled areas. These include requirements to:

- ensure that these areas are clearly defined and signposted
- ensure that access controls are in place at all times, including for authorised persons to wear identification at all times in such areas
- prevent any prohibited articles (see regulation 176) from entering the area

3.83 We recognise that some of these details will depend on the launch operations you will host. That is one reason why you are asked for a draft security programme, and proposals for security restricted areas, which can only be designated by the Secretary of State.

3.84 In your application, you must also provide information about the person you propose to appoint as security manager and provide details of their qualifications and experience. As well as meeting the basic eligibility criteria (see regulations 5-6), the security manager will have to attain relevant national security clearance before they can take up the post.

3.85 Regulation 169 sets out the responsibilities of the security manager. These include acting as the focal point for the security programme and managing the

development, administration, and maintenance of an effective security operation for the licensee, with responsibility for physical, personnel and cyber security.

3.86 The security manager for a horizontal spaceport can be the same person who carries out the security manager functions for an aerodrome co-located with that spaceport.

3.87 IMPORTANT: If you intend to support launches of US spacecraft or US launch vehicles, you must inform us of the nationality of any person who has contributed money, equipment, technology or personnel to the production or acquisition of any essential and integral part of the launch facilities or its business at the application stage. (See regulation 202)

3.88 Section 24 of the SIA allows spaceport licensees to put in place byelaws for security reasons. If you are considering making byelaws for this purpose, the proposals should be part of the draft security programme.

3.89 There is more information on security requirements in the separate document Guidance on security matters for applicants and licensees (CAP2217).

How we assess your application

3.90 We use the information you provide in your application to confirm you/your organisation has the technical and financial resources to deliver the proposed spaceport services. We then examine the safety case, siting assessment and safety clear zone information to determine whether your proposal has managed the risk of providing spaceport services to ALARP and that the residual risk is acceptable.

3.91 Where necessary, we can ask you to revise aspects of your safety case, on an iterative basis, to address additional major accident hazards or to adopt additional mitigation measures, before we grant a licence.

3.92 We can also place conditions on a licence. These could, for example, require you to put in place specific measures or undertake specific actions before your spaceport activities can go ahead.

3.93 The **minimum** time we require to determine a spaceport application is nine months from the submission date. However, if any information is missing, or we ask you to revise your safety case, we will stop the clock while we wait for your response.

3.94 If your application satisfies all requirements, your case manager will present the conclusions to our space leadership team. Our Head of UK Space Regulation makes the final decision on any licence application and proposed conditions.

3.95 After we've completed our assessment, we check if the licence conditions are contrary to the interests of government departments and other agencies. This is

a statutory consultation and it will take four weeks. You will also have the opportunity to comment on the proposed conditions at this stage.

3.96 If there are no objections from the statutory consultation, we then must get consent from the Secretary of State to grant the licence.

Granting a licence

3.97 We will write to you to inform you of our decision.

3.98 If your licence has been granted, you will be sent the licence (electronic or paper format). The licence will set out any conditions we have placed on the licence. We will also provide written reasons for including those conditions.

3.99 We will also send you a reporting plan to support our ongoing monitoring of your licensed activities. The reporting plan will detail what information you are required to send us and when. This is in addition to general reporting requirements under the SIA and Space Industry Regulations. Further details of these general reporting requirements and the other duties you will have as a licensee are set out in our separate guidance document Working with the regulator as a licensee under The Space Industry Act 2018 (CAP2214).

3.100 If your application has been refused, we will write to you to confirm this and explain why. Under section 60 of the SIA and Schedule 10, you can appeal against:

- a decision to refuse an application for a licence
- a decision to grant a licence subject to conditions.

3.101 The Space Industry (Appeals) Regulations apply in such cases. For further details, see the separate document Guidance on appealing decisions made under the Space Industry Act 2018 (CAP2216).

Chapter 4

Duties of a spaceport licensee

4.1 As examined in chapter 3, some spaceport licence applicants will not know all the details of the launch operations they are providing services for when they apply for a licence. Therefore, once you have a licence, you are required to provide us with further information about those operations and evidence that you are acting in line with your licence and any conditions on it.

Summary of duties

4.2 In addition, there are some duties that only come into effect after you have a spaceport licence. These relate to:

- reviewing your safety case on an ongoing basis and informing us of certain proposed changes to your operations **before** they are implemented.
- implementing the major accident hazard mitigation measures you identified as necessary in your safety case, such as putting in place appropriate safety clear zones for any relevant activities and dedicated areas for storing propellants and hazardous materials
- putting in place a safety management system that meets the requirements in Schedule 4 of the Space Industry Regulations
- producing a spaceport manual covering all the matters detailed in Schedule 8 of the Space Industry Regulations, keeping it updated and ensuring all staff are aware of any procedures and requirements in the spaceport manual that are relevant to their role
- developing an emergency response plan, reflecting the safety case
- maintaining appropriate and proportionate levels of security at the spaceport
- establishing a training programme and ensuring that all individuals involved in providing spaceport services have participated in it, to a level appropriate to their role, and have been assessed as being competent.

4.3 In addition, there are some duties that apply to all licensees under the SIA and the Space Industry Regulations. These can be summarised as:

- providing information to us, so we can fulfil the UK's international obligations to supervise space activities under our jurisdiction
- keeping records of, and in relation to, licensed activities
- reporting occurrences.

4.4 These latter duties are covered in the document Working with the regulator as a licensee under The Space Industry Act 2018 (CAP2214).

4.5 If you don't fulfil any of these duties, we can take enforcement action, that could result in you being prevented from conducting the licensed activities. More details on the action we can take is included in our Working with the regulator as a licensee under The Space Industry Act 2018 (CAP2214) and our enforcement policy.

Review and revision of the safety case

4.6 Chapter 4 of Part 10 of the Regulations sets out the requirements for reviewing and where necessary revising your safety case.

4.7 As a minimum, you must review and, where necessary, revise your safety case at least every five years. However, you must also review your safety case if any of the circumstances listed in regulation 155(2) apply. These include before you make any change to your licensed activities or to the spaceport and before any new launch operator starts operating from the spaceport. More broadly, they also include if any information comes to light that could alter your assessment of major accident hazards.

4.8 Any change to the safety case could alter the underlying basis of safety on which the licence was granted. Therefore, you must submit your revised safety case – including details of any additional mitigation measures you propose to put in place – before you make any change to your operations. You can't then make the change until we have provided written confirmation that your revised safety case is acceptable.

4.9 If the safety case has been reviewed but not revised, you must also inform us, in writing, without delay. We would expect you to explain why you reviewed the safety case and why you determined that no revision was necessary.

Putting in place dedicated areas for storage and handling of hazardous materials and static engine testing

4.10 After you have been granted a spaceport licence, it is your responsibility to put in place the risk mitigation measures set out in the safety case. These included designating appropriate areas for the storage, handling and venting of propellant (or other hazardous materials) and for static engine or other testing – so you now must put in place any facilities needed and ensure that these activities only take place in the designated areas.

4.11 Storage facilities for propellant or other hazardous materials must be built and managed in line with the approach you detailed in your safety case. So they must be placed in the locations you marked on the site plan and be used for

storing the types of propellant you identified, up to the maximum quantity you proposed.

4.12 Areas for handling and venting of propellant or other hazardous material must also have a surface that is compatible with that type of material.

4.13 You must also put in place appropriate procedures for propellant and hazardous material storage, management, handling and distribution – including where the propellant is owned by a launch operator licensee using the spaceport. Relevant procedures may need to cover how you will:

- identify the key responsibilities of individuals involved in the management and distribution of propellant
- store propellant in installations that meet manufacturers' specifications to ensure it is fit for purpose.
- ensure that all personnel involved in the processes of receiving, storing, and dispensing of propellant are suitably trained and competent to carry out the associated tasks
- audit all propellant installations on the spaceport to ensure compliance with the spaceport manual and procedures
- ensure quality control and maintenance procedures for preventing the deterioration or contamination of propellant stored in the installation
- retain records of all propellant on site.

4.14 The procedures should be documented in your spaceport manual.

4.15 As part of our monitoring, we can appoint inspectors to visit the spaceport and check that you are managing these materials in line with your safety case, an ensuring they are fit for use. We can also ask to see records, including of audits.

Maintenance and testing of safety equipment

4.16 If you own, manage or control any safety equipment on site, it is your responsibility to maintain the equipment in efficient working order, keep it in good repair, and test it at suitable intervals. (See regulation 162)

4.17 As a minimum, safety equipment should be inspected, serviced and maintained in accordance with manufacturers' recommendations.

4.18 You should:

- document inspection and service schedules and maintenance processes in the spaceport manual
- maintain a documentary record of inspections, servicing and maintenance undertaken

4.19 We can ask to inspect these records and service schedules.

Safety Management System

4.20 Once you have a spaceport licence, you must put in place a safety management system (SMS) that meets the requirements of schedule 4 of the Regulations. This should reflect the risks and mitigations set out in your safety case, and help you manage your licensed activities safely.

4.21 It should clearly set out roles and responsibilities for safe operations and how to respond to any issues.

4.22 It should also contain procedures to enable continuous safety improvement.

4.23 Figure 2 shows the core elements of an SMS.

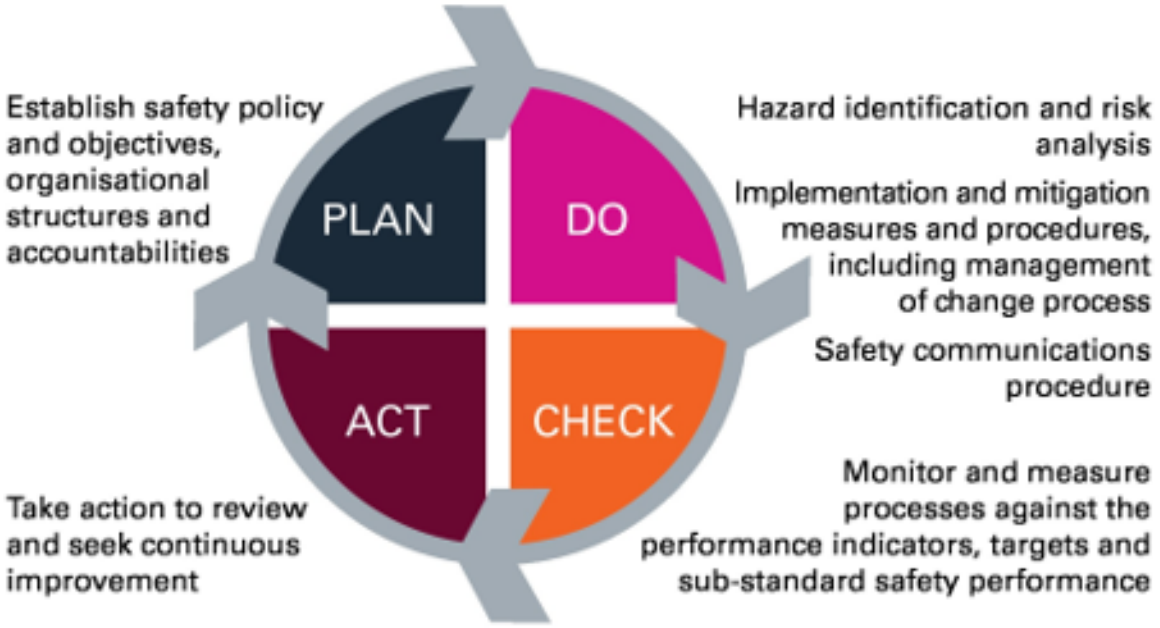

Figure 2: Development and maintenance of a safety management system

4.24 The SMS can be based wholly on your own processes/procedures, or include the procedures of another licensee, where appropriate. The decision should be whichever is best suited to supporting the safety of the overall site and operation. Documentation should be kept functional and concise, with the focus on addressing the human elements of its implementation in practically controlling the risks.

4.25 The accountable manager is responsible for the implementation of and continuing compliance with the SMS, even if this is overseen day-to-day by the safety manager.

4.26 However, safety is a shared responsibility across the whole organisation and needs the involvement of all staff at all levels. The success of whatever process or system is in place hinges on the attitudes and behaviours of people in the organisation (this is sometimes referred to as the 'safety culture').

4.27 As part of our monitoring, we will look for evidence of a safety culture, and that the whole team understands their roles and responsibilities for safety.

For more information on how to implement and maintain an effective SMS, read CAP795: Safety Management Systems – Guidance to Organisations. We can also provide further information on this at pre-application and after you have obtained a licence.

Spaceport manual

4.28 A spaceport manual is a handbook (physical/digital/both) which contains all the information necessary to enable the spaceport operating staff to perform their duties.

4.29 When you apply for a spaceport licence, you are required to develop a spaceport manual that meets the requirements of schedule 8 of the Regulations, including:

- the details of the accountable manager and senior management team, as well as their roles in rapid response
- details of the safety management system
- procedures for sharing information about the status of the spaceport
- the processes and procedures regarding reviewing, revising and testing safety measures such as the emergency response plan and any safety equipment, as well as ensuring that these measures are working, (for example, ensuring that the storage of hazardous materials complies with regulation 158)
- what happens in the event of a loss of access to rescue and fire service facilities during an emergency, and
- the processes and procedures to ensure licensed activities will be safely integrated with spaceflight activities undertaken at the spaceport (and with aviation and aerodrome activities, in the case of a horizontal spaceport)

4.30 The manual should therefore either include all spaceport safety policies, operational procedures and instructions in full, or provide specific cross-references to other required documents such as the safety case and emergency response plan.

4.31 Once you get a licence, you must update the manual to include any details that were not confirmed during your application.

4.32 You must then make the manual, or relevant parts of it, available to operating staff so that they:

- are aware of the contents of every part of the spaceport manual which is relevant to their duties, and
- undertake those duties in line with the procedures in the manual.

4.33 You must also provide us with a copy of the full manual.

4.34 You must continue to keep the spaceport manual up to date on an ongoing basis, reflecting any change in personnel, processes or procedures. To facilitate this, you should keep a record of all individuals who have a copy of the manual, so that you can inform them of any changes. You should also insert a dedicated amendment page at the front of each copy of the manual which has a record of all amendments made, showing the amendment numbers, date of incorporation, signature of the persons amending and the page or paragraph affected.

4.35 You must supply us with any additions or amendments to the spaceport manual as soon as they come into effect, and ideally before (see regulation 164(3)(a)).

4.36 At any time, we can also ask you to make amendments to the spaceport manual in the interests of safety.

4.37 The spaceport manual for a horizontal spaceport should be aligned with the aerodrome manual in place at that aerodrome. If the spaceport licensee is also the aerodrome licence holder, it can produce a combined aerodrome/spaceport manual, to avoid duplicating information (see regulation 164(1)).

Emergency planning, rescue and fire fighting

4.38 Regulation 165 requires spaceport licensees to have in place an emergency response plan, that reflects the safety case. Once you have a licence, you must therefore develop your emergency response plan, including acquiring any necessary equipment and providing relevant training.

4.39 Your emergency response plan should set out:

- how you will transition from normal to emergency operations swiftly and efficiently, including by the deployment of spaceport rescue and firefighting personnel, facilities and equipment. Horizontal spaceports may be able to use the rescue and fire-fighting capability already sited at the aerodrome.
- responsibilities in an emergency, taking into account the powers of members of the rescue and fire-fighting service at a spaceport

- what authorisation is necessary by key personnel for actions contained in the plan
- how you will ensure a safe continuation of operations or return to normal operations as soon as practicable. This includes how you will ensure that there have been no breaches of security after an emergency response. For more detail on this, see Guidance on security matters for applicants and licensees (CAP2217).

4.40 You should consult with other relevant organisations in developing your emergency response plan, to ensure coordination with their emergency response plans.

4.41 It is your responsibility to ensure that key personnel have easy access to the emergency response plan at all times.

4.42 You must test, review and, where necessary, revise your emergency response plan at least every three years. You must supply us with the results of any test of the emergency response plan.

4.43 If you propose to make any changes to your emergency response plan, whether as a result of a test or other matters, you must inform us – ideally before you make the change, but if this is not possible, immediately after.

Detailed guidance on emergency planning and the Civil Contingencies Act 2004 is available www.gov.uk/government/publications/emergency-preparedness

Putting in place a safety clear zone

4.44 As set out in regulation 157, you must put in place an appropriate safety clear zone during any hazardous pre-flight and post-flight operations. The only exception is if your safety case has demonstrated that no safety clear zone is required, and we have accepted that safety case.

4.45 The safety clear zone you put in place should be of the size and dimensions that your safety case identified as necessary for the particular activity.

4.46 You must also:

- provide sufficient notice to anyone likely to be affected by the safety clear zone that it will be in place
- monitor the safety clear zone to ensure it is not breached.

Appointment of relevant individuals

4.47 Once you have a licence, you must take steps to appoint people to the specific safety roles detailed in chapter 3 (accountable manager, safety manager and security manager).

4.48 These should be the people we approved as part of your application. If for any reason you can no longer appoint any of them to the roles, you will need to provide us with details of the individuals you have appointed, or are intending to appoint, to these roles.

4.49 Once people are appointed to these roles, you are responsible for ensuring that they:

- have the required qualifications, skills, experience, and competencies for the role (regulation 58(2)(a))
- have received training which satisfies the criteria specified in regulation 56(2) and otherwise complies with Part 7 (regulation 58(2)(b))
- are medically fit to perform their assigned duties. (regulation 58(2)(c))

Training

4.50 All licensees under the SIA are responsible for ensuring that they don't allow anyone unqualified or unfit to take part in licensed activities. (See section 18(4) of the SIA).

4.51 To this end, you must ensure that **everyone** who is involved in your licensed activities has:

- taken part in a training programme which is appropriate to their role and which includes instruction on safety
- been assessed as competent to perform their duties.

4.52 The training programme is likely to include practical and theoretical training, at an appropriate level for each employee. The minimum requirements for the training programme are specified in regulation 69.

4.53 Once this programme is established, you must:

- ensure that all employees have participated in the training programme, including receiving instructions on safety appropriate to their role, and have been assessed as being competent.
- compile and keep up to date a training manual, which complies with the relevant elements of Schedule 3 Part 2 of the Regulations.
- put in place a training management system and keep records related to training.

4.54 We can ask for evidence that training is being provided in line with your training manual. If we find evidence that you are not providing training in line with your training manual, we can take enforcement action.

4.55 It's important that you keep your training manual up to date with any changes to the training programme, and make the manual available to all staff and contractors. If you provide printed copies of the manual to staff, it's your responsibility to ensure they are all kept up to date.

Record keeping

4.56 Regulation 60 sets out the requirements for keeping records relating to training. This includes details of the training provided to each individual participants and results of any assessments.

4.57 Record keeping should be part of the training management system. The system should include arrangements for retaining records for the appropriate length of times (minimum two years) and for safe disposal of the records after that time.

Assessments

4.58 Licensees are required to ensure that everyone involved in the licensed activities has been assessed as competent. Regulation 70 specifies the requirements for competence assessments. These include how assessments should be conducted and what you need to do if anyone fails a competence assessment.

Equipment

4.59 You are responsible for ensuring you have access to sufficient training equipment to provide any practical training required.

4.60 Training equipment used for this purpose ("a simulated training device") may include devices which are capable of simulating a launch vehicle, or any equipment or facilities which are used in the licensed activities. There are requirements for the fidelity of simulated training devices. Any difference between the simulated training device and the actual launch vehicle, equipment or facilities which it is simulating must be identified and described as part of the training programme.

4.61 You must establish and maintain a system for monitoring any simulated training device or other device which you are using in your training programme.

Medical fitness

4.62 You must also ensure that individuals are medically fit to perform assigned duties. However, there is no requirement for spaceport staff to hold a medical certificate.

Security and cyber security

4.63 Spaceport licensees must ensure appropriate and proportionate levels of security at the spaceport. This includes physical security of the site, access arrangements to the site and to controlled or restricted areas, security of any supplies, security for the control of hazardous materials and procedures for

reporting security incidents. These matters should have been covered in your draft security programme, which you submitted as part of your application.

4.64 Once you have a licence, you are required to finalise this programme and put it into effect. You must also appoint a security manager (as set out in paragraph 3.75)

4.65 The security manager is then responsible for keeping your security programme maintained and up to date in response to any material changes of operations, or incidents that occur that require changes to be made to the programme.

4.66 The security manager should review the security programme on an annual basis, from the date the licence has been granted, to ensure that any changes during the year have been captured. They should then provide us with a copy of the most up-to-date version.

4.67 The requirements to prevent unauthorised access to the spaceport and to put in place, and manage access to, restricted and controlled areas will come into effect at different times, depending on your operations. It is your responsibility to identify when such access controls should be put in place. We can check that relevant controls are in place, and if they are not, we can take enforcement action.

4.68 For more details of security requirements, read Guidance on security matters for applicants and licensees (CAP2217).

4.69 Similarly, once you have a licence, you must put in place the cyber security strategy that you proposed as part of your application, including providing staff with cyber security training.

4.70 You must also review the cyber security strategy and cyber security risk assessment on which it is based on an annual basis and provide us with a copy of the most up-to-date version.

4.71 For more details of security requirements, read Guidance on Cyber Security Strategies for applicants and licensees (CAP2535).