Office for Nuclear Regulation

Licensing nuclear installations

Guidance for applicants

Office for Nuclear Regulation

Licensing nuclear installations

24 April 2026

ONR copyright: Licensing nuclear installations

This guide provides an overview of the nuclear regulatory regime and the processes for licensing, relicensing and delicensing nuclear sites. It is published on our website at **www.onr.org.uk**

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Published 04/2026

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Chief Executive and Chief Nuclear Inspector's Foreword

The safety and security of nuclear installations in Great Britain continues to be assured through a robust system of regulatory control, which is firmly rooted in our well-established licensing process. In recent years, the nuclear landscape has evolved significantly, shaped by advances in technology, emerging reactor designs, and an increasing focus on sustainability and net zero ambitions.

Against this backdrop, we have embraced innovation within our regulatory approach - adopting new tools and methodologies, enhancing early engagement with stakeholders, and streamlining processes to ensure they are both rigorous and proportionate to the potential risks presented by each site and technology. This approach positions us well to meet the challenges posed by the recommendations of the Nuclear Regulatory Task Force published in November 2025. The Taskforce has identified areas where I believe we can be ambitious in our approach and become even more efficient.

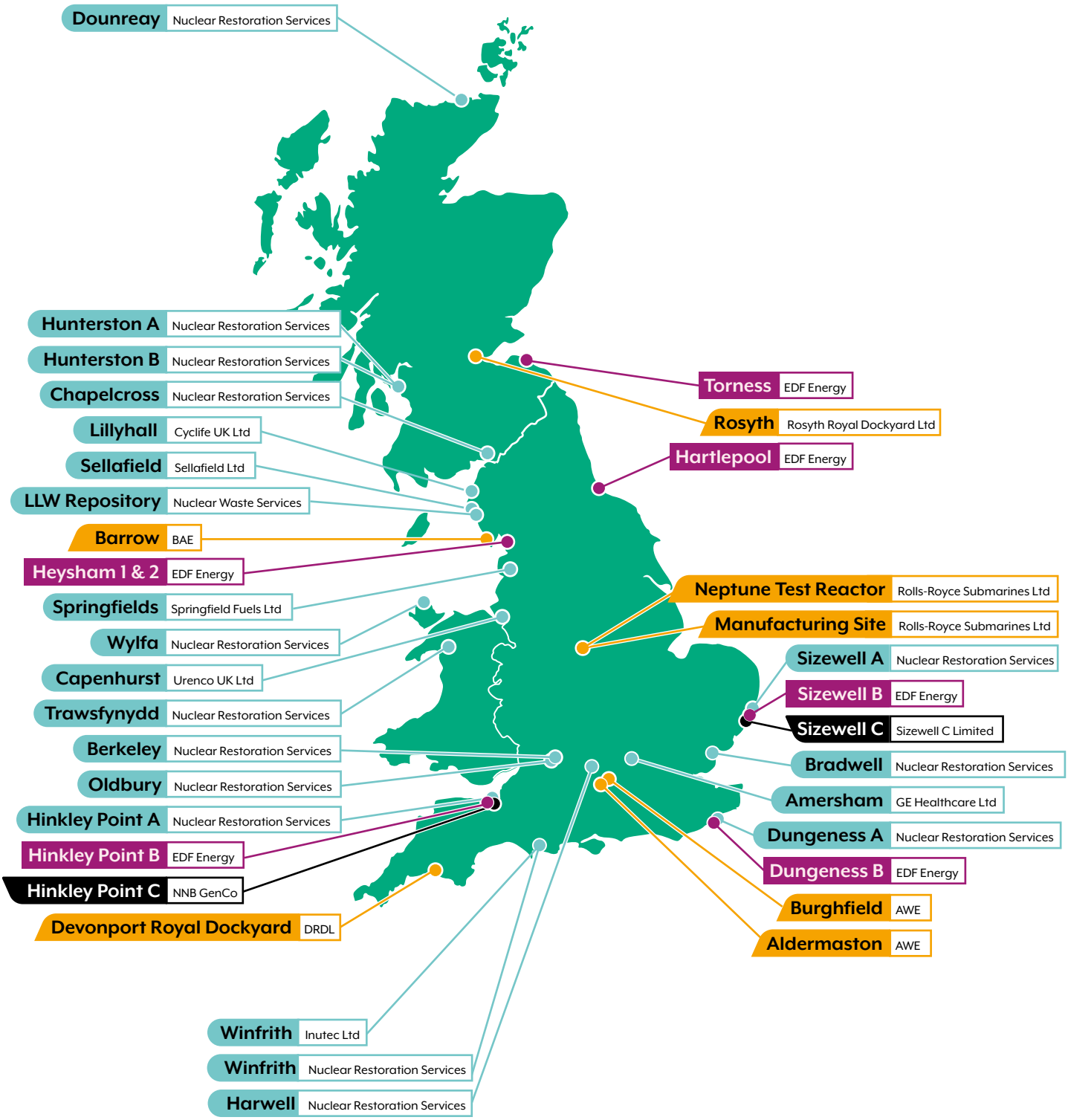
This updated guide provides comprehensive, up-to-date information on the licensing process and the key factors that inform our assessment of licence applications. It addresses every stage of the nuclear facility life cycle, from the licensing of new and advanced reactor sites, through the relicensing of existing facilities, to the final delicensing of sites following decommissioning and clean-up.

Operators of nuclear sites remain under a clear obligation to protect their workforce and the public from nuclear safety risks, as far as is reasonably practicable. Our proportionate, flexible and adaptive licensing process is essential to verifying that operators are equipped and prepared to meet these responsibilities throughout the lifecycle of the site, thereby offering assurance to employees, local communities and the wider public that nuclear facilities can be operated both safely and securely, now and into the future.

I am pleased to introduce our seventh revision, that incorporates improvements we have made to foster innovation and proportionate regulation. We believe this guidance will be a valuable resource for organisations considering applying for a nuclear site licence, as well as for the public and other stakeholders interested in understanding the modern and forward-looking licensing process that underpins the delivery of our mission.

Mike Finnerty
Chief Executive and Chief Nuclear Inspector

Map of nuclear licensed sites in Great Britain



Introduction

In the United Kingdom (UK), the installation and operation of nuclear reactors and most other nuclear installations has required a license on sites since the early 1960s when Parliament established the UK's first statutory regulatory regimes for nuclear safety and nuclear third-party liability (NTPL). The nuclear site licence (NSL) and the conditions attached to it form the basis for regulation of activities on all nuclear licensed sites (NLS). The Office for Nuclear Regulation (ONR) was established by the Energy Act 2013 (TEA13) and became the statutory regulator for NLS in Great Britain (GB) in 2014, continuing this responsibility from its predecessor organisation.

Licensing nuclear installations sets out an overview of nuclear site licensing in GB by ONR, explaining the need for licensing under the current legislation; the nature of the NSL and its conditions, the duties of the licensee, and the regulatory powers, such as permissioning and inspection, that ONR uses to ensure that we fulfil our mission to protect society by securing safe nuclear operations.

The document contains information on the processes for licensing new sites, and the relicensing and delicensing of existing sites, including the advice we provide to prospective site licence applicants and existing licensees. Detail is provided on the steps that an applicant needs to take to prepare itself to become a licensable organisation, the documents that will be needed in a licence application, and how we carry out our assessments to ensure that we only grant licences for nuclear installations that meet GB's high standards for nuclear safety on an appropriately located site and to organisations with the competence and resources to operate it safely.

Nuclear safety is one of ONR's purposes. The other purposes are: nuclear site health and safety; nuclear security; nuclear safeguards; and transport of radioactive materials. Although a NSL relates to ONR's nuclear safety purposes only, the other ONR purposes are consulted before a NSL is granted to ensure that no compliance gaps would be caused by the granting.

Applicants need to demonstrate to us that their arrangements for nuclear site health and safety, nuclear security, nuclear safeguards and transport of radioactive materials are all adequate and fit for purpose before a NSL grant. Applicants also need to demonstrate to us that their arrangements for radioactive waste management, nuclear decommissioning and emergency preparedness are adequate and fit for purpose, and we work with other safety and environmental regulators where necessary to achieve this. During the life of a NLS there may be a need to relicense a site to allow changes to take place, and eventually to delicense the site to allow it to be released for other purposes.

This document explains the relicensing and delicensing processes we follow to ensure that changes are regulated robustly such that nuclear safety is maintained up until the point when the nuclear installations have been decommissioned and the site cleaned up to the standard required for the licence to be removed and for the licensee's period of responsibility to be ended.

At the time of publication there are some initiatives in progress that may impact on the licensing process:

- The recommendations of the Nuclear Regulatory Task Force [1] are wide ranging and the government's response to these may result in significant changes to the overarching regulatory environment for new nuclear programmes.
- The Atlantic Partnership for Advanced Nuclear Energy [2] is a commitment between the UK and US to accelerate deployment of new nuclear power stations in both countries, for example by strengthening nuclear cooperation and collaborative working and reducing the timescale for obtaining a NSL.
- The UK Government's Advanced Nuclear Framework [3] is intended to create a pipeline of credible advanced nuclear projects identified as potentially deliverable in the UK.

The licensing process will be revised as appropriate to take account of these developments as they are implemented and mature over time and this will be reflected in future revisions of this guidance. In the interim, changes to our licensing process arising from these developments will be announced on our website (www.onr.org.uk).

Section 1: The licensing process for new nuclear sites

Background

1 There are well established processes and requirements for licensing new nuclear sites in GB. These cover all aspects required to allow ONR to be satisfied that the proposed nuclear installation meets relevant GB standards, is on a suitable site and that it can be installed and operated safely and in compliance with the NSL. The licensing process focuses on ONR's nuclear safety purposes and covers the other four ONR purposes as required and interfaces as appropriate with other related independent processes to fulfil the requirements of other regulators and authorities, such as in relation to obtaining development consent, planning permission, necessary permits or other authorisations, and putting NTPL cover in place. To reduce the regulatory burden, and where appropriate, ONR will seek to share information relevant to these other processes and/or encourage the licence applicant to do so. There are established arrangements in place with other regulators and (planning) authorities that we can use to do this.

2 The licensing process is flexible and provides different potential pathways to obtain a NSL depending on aspects such as the maturity of the nuclear reactor design, whether the design has been assessed, 'certified' or 'licensed' in other countries and the potential licensee's risk appetite/plans for deployment etc. The appropriate route to licensing can be explored through the early engagement process (Annex 2) and other non-ONR requirements highlighted.

3 In short, our approach is informed by our desire to:

- build on our proven nuclear regulatory process, to protect people and society from the hazards of nuclear installations;
- ensure a rigorous, robust and transparent examination of the safety case and the safety management arrangements for new nuclear facilities;
- minimise uncertainties and ensure our processes are clear and transparent to the public and industry;
- support applicants and licensees to meet requirements through efficient and effective regulatory processes aligned with the Regulators' Code [4] and Growth duty [5];
- ensure that all ONR's purposes, not just ONR's nuclear safety purposes, are considered; and
- where appropriate, draw on advice from overseas regulators.

4 A NSL may be granted at the point where we are satisfied that the applicant has adequate organisational capability and arrangements in place to manage nuclear safety on the site and comply with the requirements of the NSL. Table 1: Implementation of Licence Condition compliance arrangements lists an indicative set of Licence Condition Compliance Arrangements (LCCAs) which must be in place at the time of NSL application and NSL grant. Variations to this list may occur if a new nuclear site is close to an existing nuclear site. These licence conditions (LCs) are linked to organisational capability, safety case development and construction activities that must be in place for the newly licensed site before any nuclear safety-related construction is carried out. Remaining LCCAs will need to be developed to support other site activities, including commissioning and operations, as required. A Site Justification Report (SJR) which demonstrates that the site is suitable for the installation and its subsequent safe operation, which we consider to be adequate, is necessary at the point of NSL grant. However, a pre-construction safety report (PCSR) is not necessary at the point of a NSL grant but will be needed to justify the start of nuclear safety-related construction.

5 A NSL can be granted at a time well in advance of the start of planned construction activities. We consider that there are advantages to granting a NSL as soon as possible to put the on-going development of the site under the regulatory framework provided by the NSL and for further development work, such as in relation to the LCCAs and the safety case for installation/construction of the installation, to be developed through the LCCAs. Granting a NSL also has the advantage of establishing ONR as the enforcing authority for nuclear site health and safety on the NLS (and also on the new nuclear build site if applicable).

6 A NSL must be in force before the site is used to install or operate a nuclear reactor or other prescribed installation. This is taken to be the start of nuclear-safety related construction, typically the placement of the first structural concrete or components of structures with nuclear safety significance such as the nuclear island on which the nuclear reactor will be located, on the basis that if this is inadequately conceived or executed it could impact on nuclear safety when the nuclear installation is operational. Such construction will typically be covered by a full site-specific PCSR and, if so specified, will need to be permissioned by us under the conditions attached to the licence before it can proceed. Some activities that are not nuclear-safety related, such as ground clearance/preparation or construction of 'non-nuclear' structures, can take place before a licence is granted and for site health and safety these activities will be regulated by the Health and Safety Executive (HSE) up to NSL grant. We nevertheless work in close cooperation with HSE during these periods under the ONR-HSE Memorandum of Understanding (MoU) and detailed guidance [6].

7 The timing of NSL grant can be discussed during early engagement and will be indicated in the intervention strategy produced at the time of formal entry into the licensing process.

Early engagement and pre-application advice

8 ONR and the environment authorities provide processes to give advice and guidance before a licence application is made to help a prospective licence applicant develop the most effective route through the licensing process and submit a high quality 'right first time' licence application. This is provided through the early engagement framework, which provides advice and guidance on the technical reactor design and the potential pathways through optional and mandatory regulatory processes (Annex 2), and the Generic Design Assessment (GDA) process, which provides a fundamental assessment of a nuclear reactor design against UK regulatory requirements (Annex 3).

Cost recovery

9 ONR recovers its regulatory costs for licensing work from the prospective licence applicant or other body engaged in relation to a potential licence application through provisions in TEA13 and the Health and Safety and Nuclear (Fees) Regulations 2022. For entry into early engagement and pre-application advice (Annex 2), and GDA (Annex 3), a charging agreement will need to be agreed to enable ONR to recover its costs. The charges for assessing and processing a formal application for a NSL will be recovered through the powers in the Nuclear Installations Act 1965 (NIA65) section 24A. Charging agreements will similarly need to be agreed by the developer with the relevant environment authority for activities relating to environmental authorisations.

Entry into the Nuclear Site Licensing Process

10 A prospective licence applicant can apply for entry into the licensing process by contacting ONR, providing details of its proposed project. We will consider all valid applications and aim to accept them into the licensing process as soon as possible. If the prospective licence applicant has not been through the early engagement framework, we will review the application for entry into licensing in its own right, considering the maturity of the design and safety analyses, and the capacity and capabilities of the organisation wishing to become a licensee.

11 ONR has a finite level of resources to fulfil its statutory work and has a responsibility to manage its regulatory capability appropriately to provide the best value for money to the nuclear industry, government and the public. As such, ONR has discretion to consider requests for early engagement and pre-application advice and/or licence applications against other demands and schedule work on engagements and formal assessment appropriately.

12 Once accepted into the licensing process, we will establish and agree an intervention strategy covering further engagement and the processing of a licence application through to potential NSL grant.

Pre-requisites for entry into the formal licensing process

13 We have developed policy criteria that need to be met by licence applicants to demonstrate their readiness to enter the licensing process. These are that:

- the applicant has a credible plan to deploy a nuclear reactor or an installation of a prescribed kind;
- the applicant must be a body corporate. This includes companies formed and registered under the Companies Act 2006, statutory corporations and bodies incorporated by Royal Charter. It is presumed that the body corporate will be a UK-based organisation. If not, advice should be sought from ONR during the early engagement/pre-application process. Where the applicant is owned by another body corporate (e.g. as a subsidiary of a group parent or as a shareholder in a joint venture company) the applicant must demonstrate that it will be the 'controlling mind' with independent authority and responsibility on the NLS, notwithstanding that the parent organisation may have a strategic role in relation to aspects such as the provision of funding etc;
- the proposed site must be demonstrably suitable (Annex 4). There should be a SJR which demonstrates that the site is suitable for the installation and its subsequent safe operation [7];
- the applicant has security of tenure of the site prior to, or at the point of NSL grant (in the context of this document, "security of tenure" is taken to mean full rights of access to, and control, of the site, including right of exclusive occupation and sufficient rights for access and connection of required service media, whether by way of freehold purchase or grant of a lease). It is preferred that the applicant has full ownership of the site. Otherwise, we will usually require it to have a lease that provides the required level of access and control [8] . The security of tenure must be of sufficient length to cover the expected operational life of the site through to delicensing. The required duration of the security of tenure will depend on the nature of the nuclear installation(s) present and lifetime plans for the site. For a nuclear power reactor site, where reactor operations may be expected to continue for 60 or more years followed by decommissioning over several decades (particularly where the strategy of deferred decommissioning is used), security of tenure for several hundred years may be required. For other types of installation with shorter lifecycles, shorter durations of security of tenure may be appropriate;
- a cost recovery agreement between ONR and the applicant is agreed;
- the applicant must have confirmed to us that it will enter into security regulation and comply with the Nuclear Industries Security Regulations 2003 (NISR03) [9]. The applicant may already have provided such confirmation to the Department for Energy Security and Net Zero (DESNZ) if the reactor design was progressed through the GDA process. If not, we will request this;

- Eligibility to proceed: We will ask DESNZ to undertake due diligence checks on our behalf to enable us to determine the eligibility of the applicant to proceed into the licensing process, typically in relation to the applicant's financial standing, funded decommissioning programme (FDP) (where required), and NTPL insurance arrangements; and
- where a new nuclear build site (Annex 1) will be established to carry out construction activities for the purpose of installation of the nuclear installation on the proposed licensed site, this should be raised with us to reach an agreed position on it and whether it should be included on the site map.

Other requirements that need to be fulfilled

14 Additionally, there are some requirements that are outside of ONR's responsibility that need to be in fulfilled either before the grant of a NSL or before the commencement of any licensable activities on a site. These requirements will be considered during early engagement or assessment of a licence application, as appropriate.

- Alignment with government policy for new nuclear energy generation projects: Government has an overarching policy for energy infrastructure [10] and a national policy statement specifically for nuclear energy generation, EN-7 [11] (Annex 4). The alignment of the proposed project with these government policies is not determinative of entry into the licensing process or whether or not a NSL may be granted pursuant to an application. However, we will consider these policies, in particular in our assessment of the SJR. In doing so, we may seek further information from DESNZ and/or the applicant as to the alignment of the proposed project with such policies.;
- Proposed practice justification: We will require the licence applicant to indicate whether the proposed activity involving ionising radiations is of a class or type that is already justified under the Justification of Practices Involving Ionising Radiation Regulations 2004 (JoPIIRR04) (Annex 1) or that there is in place a credible plan to obtain such justification. Licence applicants should check whether there is an existing UK government decision on the justification of the type or class of activity which is to be undertaken at the site;

- Operations requiring a permit from the Secretary of State (SoS): Where a site is intended to be used to carry out operations that require a permit from the SoS (Annex 1), both a NSL and the permit will be required before the operations can be carried out. Whether a required permit has been obtained or not is not determinative for entry into the licensing process or whether or not a NSL may be granted pursuant to an application. However, we may engage with the applicant and DESNZ during the licensing process to ensure we are sighted on progress with obtaining a required permit and any issues relevant to grant of a NSL;
- NTPL insurance: The applicant is required to have adequate and approved NTPL cover in place for a NLS (Annex 1). The applicant should progress this with DESNZ in a timely manner to ensure such cover will be in place before NSL grant. We will confirm with DESNZ that such cover is in place before granting a NSL;
- Funded decommissioning programme: The Energy Act 2008 (TEA08) section 45 [12] introduced a requirement that from 2008-onwards a site on which a nuclear installation will be constructed or operated that requires a generating licence under the Electricity Act 1989 section 6(1)(a) [13] must have a FDP. Thus, this requirement applies to sites installing and operating nuclear reactors whose purpose is to generate electricity for the purpose of giving a supply, including those providing electricity directly to industrial facilities (such as data centres) and not through the national grid. Where the site does not involve a nuclear installation whose purpose requires a generating licence then a FDP will not be required, although we advise that this is confirmed with DESNZ.

  When an applicant applies for a NSL for a site requiring a FDP it must give written notice of the application to the SoS and prepare and submit to the SoS a FDP for consideration for approval. The FDP must make adequate arrangements for covering the cost of decommissioning and cleaning-up of the site, including the treatment, storage, transportation and disposal of hazardous material [14].

  A licence application can be assessed and a licence granted before a FDP has been submitted to the SoS and approved. However, TEA08 section 47 prohibits the use of a NLS for any activity that requires a licence until a FDP has been approved;
- Planning permission: When required, a nuclear installation will need appropriate planning permission or development consent (Annex 4).

The licensing process

15 The licensing process may involve several stages. The reactor design may go through the GDA process in advance of licensing to gain regulatory acceptance of the generic design and to de-risk a subsequent licence application to deploy that reactor type. The optional activities under the framework for early engagement can form an invaluable part of a prospective applicant's preparatory phase to ensure they fully understand the licensing process and requirements and receive advice and guidance to develop the most effective route through the process and submission of a high quality 'right first time' licence application. The process is flexible and can be optimised to expedite licence grant.

16 Once accepted into the licensing process, an intervention strategy will be developed to capture the specifics of the process and timeline and project management aspects for the assessment of the licence application.

17 This section provides a general overview of the stages of the licensing steps and associated requirements, with reference to ONR guidance which provides more detail (*Safety Assessment Principles for Nuclear Facilities (SAPs)* [15], *Security Assessment Principles for the Civil Nuclear Industry* (SyAPs) [16], *Supply chain management arrangements for the procurement of nuclear safety related items or services* [17], *Function and Content of a Safety Management Prospectus* [18], *Function and content of the Nuclear Baseline* [19] [20], *Licensee Core Safety and Intelligent Customer Capabilities* [21], *Design Authority Capability* [22], *Corporate Governance for Safety* [23], *Safety leadership* [24], *Management systems and quality management arrangements* [25]).

Step 1 - Establishing a licensable organisation

18 At the point of application, the applicant does not need to have the full competency and capability required to hold a NSL, but it must have credible plans to develop its organisational capability before the licence is granted to the point of being a licensable organisation capable of installing and operating a nuclear installation safely and securely.

19 The applicant should have developed sufficient core competency in order to fully engage with ONR and other regulators during the licensing process, with plans to progressively develop the full competency and capability during the licensing process. A summary of the key elements of a licensable organisation are presented below, with more detailed guidance on requirements and expectations provided in the cited guidance.

Organisational status

20 The applicant organisation must be a body corporate. It must have a suitable board of directors and leadership team to provide the senior strategic direction and leadership of the organisation. The board and leadership team have broad-ranging responsibilities, including establishing and maintaining an effective health, safety and security culture, performance and legal compliance and ensuring adequate necessary financial and human resources.

21 The board members serve a crucial role in ensuring proper focus on the management of health and safety on a site, as failure in this can have significant consequences for individuals and the organisation as well as legal consequences [23] [24]. If a health and safety offence is committed with the consent or connivance of, or is attributable to neglect on the part of a director, manager, secretary, or similar role holder, then that person could be prosecuted under the Health and Safety at Work etc 1974 Act (HSWA74) or TEA13. Any individual convicted of an offence could be disqualified from being a director of a company or in relation to involvement in other activities in relation to a company under the Company Directors Disqualification Act 1986 [26].

Organisational capability

22 The applicant body must have an adequate organisational structure and governance, management and operational arrangements in place to manage nuclear safety of the site and discharge the obligations associated with holding a NSL. These arrangements can develop progressively through the licensing process to provide the core arrangements required to support NSL grant and then continue to develop to support site construction, operations and later lifecycle stages as appropriate. It is good practice to have a high level policy and strategy and senior team in place from the early stages to provide appropriate governance and guidance for example on organisational capability development and to provide a framework for appropriate recruitment etc. The organisational arrangements should be proportionate and fit for purpose considering the nature of the site and its proposed activities post-licensing.

23 A safety management prospectus (SMP) [18] is a strategic document produced to present the organisation's coherent approach and capability in relation to the management of safety and risks. It should cover all aspects of safety on site, including nuclear safety, conventional health and safety and relevant aspects of the transport of radioactive material. The SMP should provide a health and safety policy that sets out how the health and safety risks of activities that will be undertaken on the site will be managed, with clear descriptions of the relevant organisational structure, governance, management systems and staffing arrangements. We and the relevant devolved environment authorities encourage applicants to develop a combined safety, security and environment management SMP.

24 A requirement of Licence Condition 36 (LC36) "Organisational capability" is that the organisation must provide and maintain adequate financial and human resources to ensure the safe operation of the NLS. The organisation should have adequate and maintained staffing (the 'nuclear baseline') to demonstrate it has suitable and sufficient organisation structures, staffing and competencies in place to adequately manage nuclear safety throughout the full range of site activities [20] [19]. Post-licensing, the nuclear baseline will provide the foundation from which organisational changes can be assessed in accordance with arrangements made under LC36.

Core safety capability

25 Core safety capability is defined in [21] as the knowledge, experience and resources that the licensee should maintain within its own organisation to ensure enduring control and oversee nuclear safety at all times. Intelligent customer and design authority form part of core safety capability. Intelligent customer capability is important when work is undertaken by contractors and is the capability of an organisation to understand where and when work is needed; specify what needs to be done; understand and set suitable standards; supervise and control the work; and review, evaluate and accept the work carried out on its behalf [21].

26 Some key elements of core safety capability include:

- Design authority capability. The licensee must have a formally designated entity within its own organisation. This provides its design authority to understand and maintain the design intent and the safe operating envelope of the nuclear installation through its life and have associated arrangements to deliver this function [27] [22] [28].

  We recognise that an adequate design authority function can be delivered in a number of ways reflecting aspects such as the relationship between the licensee and installation vendor/designer and nature of the installation deployment (such as in the case of a fleet of the same nuclear reactor type potentially deployed by different licensee organisations). The design authority expertise could fully reside within the licensee organisation or its own, nascent, design authority capability could be supplemented with the installation vendor/designer through a formal arrangement, in which case the design authority should maintain adequate intelligent customer capability for work undertaken by contractors. In this case, the applicant should have appropriate arrangements to transfer sufficient knowledge and information from the installation vendor/designer into its organisation so that it can demonstrate that it can adequately fulfil its design authority role.

In cases where a nuclear reactor is being assessed in the GDA process, it can be beneficial for any prospective licensee's nascent design authority to be involved to give it the opportunity to gain a thorough understanding of the design and to understand its evolution through development and regulatory assessment. In all cases the licensee's design authority will have ultimate responsibility for the design of the installations used on its site and must always control and approve any design decisions and changes.

Construction (Design and Management) 2015 (CDM15) [29] relates to ONR's nuclear site health and safety purposes and not to ONR's nuclear safety purposes. It applies to all construction projects in GB. Regulation 10 places a duty on the person commissioning a design outside of GB for use in construction work to which CDM15 applies to ensure that the designers have adequately discharged their duties under CDM15 regulation 9;

- Technical capability to develop safety cases demonstrating that the nuclear installation can be installed and operated safely;
- Intelligent customer capability to understand, specify, oversee and accept nuclear safety or security related work, items or services procured or done on its behalf by contractors as part of the arrangements for supply chain management [21]. This includes external participation in its design authority;
- Nuclear baseline includes sufficient competent and suitably qualified and experienced persons to ensure nuclear safety [20] [19].

27 The provision of adequate organisational- and core safety-capability will reflect the specifics of each individual site based on aspects such as the nature of the body corporate, the nuclear installation(s) and associated activities involved and the risk profile.

28 For licensee organisations that are part of a larger parent organisation, ONR recognises that the licensee's core safety capability could be supported by a shared resource such as a central technical function provided by the parent organisation. This is usually acceptable provided the licensee retains ultimate responsibility for safety on the site and has adequate intelligent customer capability to support this.

29 For small, lower risk installations, such as research reactor sites, there may be challenges in relation to core safety capability due to the relatively small workforce, requiring flexible approaches to fulfilling the nuclear baseline and increased use of external technical support etc [30]. Our assessment will consider how adequate capability can be provided in a proportionate and pragmatic way in these cases.

Licence condition compliance arrangements

30 We will accept a phased approach to the development of LCCAs provided that it ensures that arrangements for compliance with specific LCs are in place in a timely manner for when they are required to support site activities. This will depend on whether it is a new licence application or a relicensing case and can be discussed with us during pre-application engagement and included in the intervention strategy.

31 On entry to the licensing process, only the arrangements for compliance with the 'building block' LCs (i.e. LCs 1, 6, 10, 12, 13, 14, 17 and 36; referred to as "Group 1A" LCs) must be fully developed to demonstrate that the applicant has the capability to progress further development of the design and safety case and organisational capability. The LCCA for LC1 should present the meanings of expressions that are used throughout the other LCCAs to ensure they are used consistently (this may potentially be provided through an appropriate glossary of terms; the LC handbook [31] provides some relevant expressions) and should be kept up to date as appropriate as other LCCAs are developed. Some LLCAs (for "Group 1" LCs) must be in place at the time of NSL grant while others will only need to be in place to support the commissioning and operation of the nuclear installation (Table 1: Implementation of Licence Condition compliance arrangements). A programme for developing LCCAs should be prepared by the licence applicant. We will not permission any construction, commissioning or operational activities until relevant LCCAs are demonstrably in place.

Table 1: Implementation of Licence Condition compliance arrangements

Licence Condition	Latest time compliance arrangements must be in place		
	By NSL application ("Group 1A")	By NSL Grant ("Group 1")	After NSL grant and in advance of relevant activities
LC 1 Interpretation	√		
LC 2 Marking of the site boundary		√	
LC 3 Control of property transactions		√	
LC 4 Restrictions on nuclear matter on the site		√	
LC 5 Consignment of nuclear matter			√
LC 6 Documents, records, authorities and certificates	√		
LC 7 Incidents on the site		√	
LC 8 Warning notices		√	
LC 9 Instructions to persons on the site		√	
LC 10 Training	√		
LC 11 Emergency arrangements		√	
LC 12 Duly authorised and other suitably qualified and experienced persons	√		
LC 13 Nuclear safety committee	√		
LC 14 Safety documentation	√		
LC 15 Periodic review			√
LC 16 Site plans, designs and specifications		√	
LC 17 Management systems	√		
LC 18 Radiological protection			√
LC 19 Construction or installation of new plant		√	

Licence Condition	Latest time compliance arrangements must be in place		
	By NSL application ("Group 1A")	By NSL Grant ("Group 1")	After NSL grant and in advance of relevant activities
LC 20 Modification to design of plant under construction		√	
LC 21 Commissioning			√
LC 22 Modification or experiment on existing plant			√
LC 23 Operating rules		√	
LC 24 Operating instructions			√
LC 25 Operational records			√
LC 26 Control and supervision of operations			√
LC 27 Safety mechanisms, devices and circuits			√
LC 28 Examination, inspection, maintenance and testing			√
LC 29 Duty to carry out tests, inspections and examinations			√
LC 30 Periodic shutdown			√
LC 31 Shutdown of specified operations			√
LC 32 Accumulation of radioactive waste			√
LC 33 Disposal of radioactive waste			√
LC 34 Leakage and escape of radioactive material and radioactive waste			√
LC 35 Decommissioning			√
LC 36 Organisational capability	√		

32 The applicant should be able to demonstrate how LC compliance is delivered and assured through the management system. This is usually done through LCCAs, a compliance matrix or 'route map' through the management system, which are part of the SMP [18].

33 We will require the licence applicant to demonstrate the adequacy and robustness of its management arrangements for operating the site safely and complying with the NSL as part of the licence assessment process. This may be achieved through a period of 'shadow working', effectively commissioning of the arrangements, where the applicant works to the management arrangements as if it were under the constraints of a NSL. The duration of any such shadow working should be sufficient to allow for any refinement and re-testing of management arrangements based on learning from the experience. We then review the performance of the management arrangements and their adequacy during this shadow working period to inform our assessment and the licence grant decision.

34 The specific expectations for shadow working are determined for each particular case and documented in the intervention strategy. The degree of shadow working necessary will usually be greatest in cases where a new body corporate will become a licensee or in a relicensing case where an existing licensee is taking over a site from another licensee and bringing that site under the control of its own arrangements. In other cases of relicensing, such as extension of the site boundary or to add a new prescribed nuclear installation to the licence, where the site will continue to be managed under existing mature management arrangements, there may only be a need for minimal or possibly no shadow working, as we will already have confidence in the adequacy of the arrangements from our routine regulatory oversight of the site.

Step 2 – Creation of the licence application dossier

35 The applicant must prepare a licence application dossier. The format and content of this dossier should be discussed with us during early engagement and pre-application advice activities, but is expected to include the following:

- a full and comprehensive description of the installation to be licensed and the activities it will carry out. There should be a statement providing evidence that the operation of the nuclear installation is justified under the JPIRR2004 [32] (Annex 1);
- a SJR demonstrating that site specific geological conditions, local external hazards and the proximity to local populations etc. are compatible with the construction and operation of a nuclear installation [7] and the proposed site is in line with relevant UK government siting policies;
- a map of the site and its location. The NLS boundary should be clearly defined using appropriate mapping technology and presented in a site boundary plan (Annex 4)

- evidence that the applicant has security of tenure for the site for an appropriate duration;
- a SMP, company manual and nuclear baseline;
- details of the organisational capability and capacity, including organisational structures, governance arrangements, design authority and intelligent customer capabilities, resources and competency and training. The arrangements for independent challenge and oversight should also be included. This includes details of any internal regulator function and the terms of reference for the proposed licensee's nuclear safety committee (NSC) [33].
- LCCAs for the 'building block LCs' and a schedule for submission of the other LCCAs;
- safety case appropriate for the current stage and a schedule of safety submissions up to NSL grant and subsequently to support permissioning of construction and operations [34]. This should include the development of a site-specific PCSR for the construction of the nuclear installation; this can be developed after NSL grant but will be needed before we permission the start of nuclear safety-related construction activities.

  Where the proposed installation is a nuclear power reactor design which has been through GDA and has been issued a Design Acceptance Confirmation (DAC), the safety case may build on the safety case for that generic design. It will need to demonstrate that the proposed installation is substantially the same as the generic design, with justification for any design differences and for site-specific aspects;
- in relation to ONR's nuclear security purposes, details of the nuclear security arrangements and plans in place to ensure the security of the site and compliance with NISR03 requirements. This should include a forward-looking plan to update the security plan for the site as its risk profile changes during its lifetime [35]. An adequate and approved security plan must be in place before a NSL grant;
- in relation to ONR's nuclear safeguards purposes there should be engagement with us in advance of construction to provide relevant information on the nuclear installation to fulfil the requirements of the Nuclear Safeguards (EU Exit) Regulations (NSR19) [36];
- details of appropriate emergency arrangements and a suitable emergency plan (this may be limited for the period before nuclear fuel is brought onto the site) [37];
- details on the decommissioning strategy for the site demonstrating how it will be carried out in line with relevant good practice [38]. Where one is required, the applicant must have a FDP covering the cost of decommissioning the site, approved by the SoS;

- details of the strategy and plans for management of the radioactive waste that will be generated during the life of the installation demonstrating it will be managed in line with relevant good practice [39];
- details of inter-site safety and security agreements where there is an adjacent nuclear site;
- In relation to ONR's transport of radioactive materials purpose: high level plans to transport radioactive material onto or off the NLS.

36 A licence applicant should seek our advice to check the adequacy of the application dossier before it is submitted

Step 3 - Licence application

37 The expectations laid out in this document, together with the detailed expectations in the applicant's specific pre-application phase intervention strategy form the basis for readiness to enter the NSL application assessment phase. The applicant should undertake a readiness review of its progress against these expectations and provide its outcome to us. We will, throughout the pre-application phase, advise the applicant of its progress via the programme governance framework and encourage prospective applicants to formally apply for a NSL when we agree on readiness to move to the assessment phase.

38 An application for a NSL must be made to the Chief Nuclear Inspector (CNI) and be supported by a dossier containing sufficient information to enable ONR to assess the prospective licensee and the proposed NLS [8]. We will advise the applicant on the required format of the submission.

Step 4A - Assessment of the application

39 Our procedure for processing licence applications is described in the guidance document *The processing of licence applications for new nuclear sites* [8]. On receipt of an application, we will carry out an initial review to provide an estimate of the timescale required to complete the licensing assessment, based on the following:

- the adequacy of the licence application dossier;
- the quality of the applicant's submissions. Also, how successfully the SJR provides assurance that the site will be suitable for the proposed activities if the plant is adequately designed, constructed and operated;
- the maturity of the applicant's organisational structure and capability and extent of further development needed;

- the maturity of applicant's LCCAs; and extent of further development needed;
- progress towards gaining security of tenure for the site;
- the licence applicant's indicative timescale for concluding its own review of its readiness to be granted the licence, if not completed at the time of application;
- completion of an adequate period of shadow working; and
- the licence applicant's security capability to deliver a security plan and meet the expectations in the SyAPs.

40 We will complete our assessment as expeditiously as possible. The length of the assessment period can vary between applications depending on factors such as the maturity and quality of the application dossier, the level of regulatory assessment needed and the speed at which the applicant responds to any requests for additional information.

41 We will develop an intervention strategy for the formal assessment of the application setting out how we will assess the application to inform a decision by the CNI as to whether or not a NSL should be granted. The intervention strategy will indicate the detailed scope of our assessment and the arrangements for further regulatory interactions, for instance in relation to the on-going development of safety documentation and LCCAs and when they can be submitted for assessment. It will also detail the management of emergent regulatory and technical issues and governance of the overall process. We will also consult with DESNZ on the applicant's financial standing, FDP (where required), and NTPL insurance arrangements.

42 In line with Table 2, we expect the licence applicant to continue to develop the LCCAs and safety documentation during the licence assessment process and after licence grant.

43 Our assessment will cover each aspect of the licensing dossier (as described above) targeted in accordance to risk and in line with our expectations detailed in the SAPs [15], SyAPs [16] and our Technical Assessment Guides (TAGs) [40] and other relevant good practice.

Step 4B - Consultation

44 NIA65 requires us to consult with certain external parties before granting a NSL so that we can take their opinions into account when making our decision on whether to grant the NSL. The external parties are the appropriate environment authority and relevant public bodies as detailed below.

Mandatory consultation with the environment agencies

45 NIA65 section 3(2) places a requirement on us to consult the appropriate devolved environment authority (the Environment Agency in England, Natural Resources Wales (NRW) and Scottish Environmental Protection Agency) before granting a new NSL. This is to ensure that granting a new licence will not conflict with the relevant environment authority's environmental protection responsibilities. It is also to ensure that it will not prejudice any legal process under the Environmental Permitting (England and Wales) Regulations 2016 for sites in England and Wales, or for sites in Scotland, the Environmental Authorisations (Scotland) Regulations 2018, or other environmental legislation. The arrangements for this consultation are set out in MoU between us and each environment authority [41] [42] [43]. We will not normally grant a NSL unless we have been assured by the appropriate environment authority that it expects to be able to grant a permit under the relevant environmental regulations. The Environment Agency provides guidance on permits for radioactive substances activities on NLSs [44].

Public authority notification

46 We have a discretionary power under NIA65 section 3(4) to direct a licence applicant to serve notice on any public authority that we specify [45]. These authorities will normally be local to the site in question and who we consider will have a particular interest in the proposed nuclear site. For example, they may include a water undertaker, local authorities, emergency services, river authorities, fisheries committees, and national parks authorities. The intent of public authority notification is to ensure that relevant public authorities who have statutory duties in relation to the site have an opportunity to be informed of the licence application and to advise us if their duties may be affected by the licensable activities. This enables us to consider their opinions materially in the licensing decision.

47 When this power is invoked, we will issue a direction to the licence applicant indicating which public authorities they should serve with a notice. The notice(s) must state that the licence application has been made and give such particulars about the proposed use of the site under the licence as we may indicate in our direction and indicate that the public authority can provide comments to us within three months of the date the notice is served. We will also consider and evaluate any comments submitted by other stakeholders.

48 Our discretionary power to direct notices to public authorities will not likely be used in relation to nuclear installations that are Nationally Significant Infrastructure Projects (NSIPs) or Significant Infrastructure Projects (SIPs) (Annex 4). This is because the planning processes for these involve extensive consultation which will include all relevant public authorities and ensure that they are adequately informed of the development and its consequences for their areas of responsibility.

Step 5 – Decision on granting the licence

49 At the conclusion of our assessment of the licence application we will draft a project assessment report (PAR) which consolidates our assessment work carried out on the licence application dossier and presents the findings and conclusions. We will also request the applicant to formally confirm that it has satisfied itself that it is ready to hold a NSL and comply with its requirements and the requirements of other applicable legislation for which we are or will be the enforcing authority after NSL grant, to include as part of the PAR assessment. The PAR makes a recommendation to the CNI as to whether a NSL should be granted.

50 The PAR and recommendation for granting a licence will go through appropriate internal review and governance before the final decision is made. If there are any issues that need resolving, these will be raised with the applicant.

51 If the CNI is satisfied that a NSL can be granted, a NSL will be prepared and signed by the CNI (or delegated authority). An original signed copy of the NSL will be provided to the applicant. The licensee's period of responsibility (POR) begins when the NSL is granted.

52 If our assessment finds shortfalls which prevent us from recommending that a NSL can be granted, then we would make clear what these are and provide the opportunity for these shortfalls to be addressed. However, if this proves unsuccessful, then we would recommend to the CNI that a NSL should not be granted. If the CNI accepts this position, then the CNI will write to the applicant to notify the decision and the reasons for rejection. There is no statutory right of appeal against such licensing decisions, although the applicant may request that we do a review of the process by which that decision was reached or initiate a judicial review of ONR's decision.

53 A rejection does not necessarily foreclose the applicant from making a future licence application if the application dossier is revised to fully address the reasons for the original rejection.

Step 6 - Regulation after the licence is granted

54 Once the NSL is granted and comes into force, the licensee is responsible for compliance with all legal requirements applicable on the NLS. This includes legal requirements associated with ONR's nuclear safety, nuclear security and nuclear site health and safety purposes. We will assign proportionate nominated site safety inspector and security inspector resource to oversee and regulate the site and enforce compliance with relevant legal requirements, including the LCs and other regulations until such point that the site is delicensed and the POR has ended. We will also oversee and regulate nuclear site health and safety on the new nuclear build site, if one was established at NSL grant until the end of construction work.

55 In the early period following a NSL grant, in relation to ONR's nuclear safety purposes, the licensee will need to continue to develop its organisation to be fully capable and competent to construct, install and operate the nuclear installation. This will include the further development of required LCCAs, including LCs 19, 20 and 21 to cover construction, design modification and commissioning activities, and associated organisational capability appropriate for the lifecycle stage of the site. In relation to ONR's nuclear site health and safety purposes, the CDM15 regulations [29] will be particularly important in relation to the extensive construction activities that will be required to install and construct the installation.

56 A licensee may use the site for the purpose of installing and operating the nuclear installation defined in the NSL and covered by appropriate safety documentation. However, given that the adequate construction and installation of any nuclear installation is fundamental to its subsequent safe operation and if inadequately conceived and executed could lead to significant nuclear safety consequences, we will establish regulatory hold-points on key stages of the development of the installation that require permissioning by ONR before they can progress. In relation to nuclear safety permissioning, to ensure proportionality ONR is likely to use a combination of primary power permissioning and derived powers permissioning (these terms are explained in [46], our guidance document on nuclear safety permissioning) Stages for which regulatory hold-points are applied typically include:

- placement of the first structural components (e.g. concrete) for buildings with nuclear safety significance This will be supported by a site-specific PCSR;
- commissioning activities to bring the installation to an operationally ready status, including bringing nuclear fuel or other nuclear matter onto site to facilitate such activities. This will typically require the submission of safety documentation, such as a pre-commissioning safety report (PCmSR) and a pre-operational safety report (POSR), as appropriate, through the period of installation and testing of plant in the installation;
- commencement of operation of the nuclear installation, such as first criticality in the case of a nuclear reactor;
- other key changes in installation design or operation etc that may be of safety significance over the life of the site (LC22 controls modification or experiment on existing plant, with modification being assigned the meaning in LC1).

57 The use of such hold points to provide regulatory control over safety significant activities is explained in our guidance on permissioning [46]. Where regulatory hold points are set, the licensee will need to provide required information to us for assessment, typically this is an appropriate safety case (e.g. a PCmSR, PCSR, POSR or operational safety case, as appropriate) and other relevant information, to demonstrate that the proposed activity can be carried out with due consideration for nuclear safety [34]. If we assess it as adequate, we will grant permission for that activity to be commenced.

58 Where there are any changes to the nature of the site and associated security risks, the site security plan will need to be updated and approved in accordance with NISR03.

59 It is good practice to keep the adequacy of the nuclear security of tenure under review over the life of the site to ensure it remains sufficient, for instance in response to any significant extensions to the site lifetime plan or any property transactions involving parts of the site [47]. It may be appropriate to include this review in arrangements for periodic reviews of safety under LC15.

Parent company and Information on ownership

60 Where the licensee is owned by another body corporate (e.g. as a subsidiary of a group parent) we expect the parent company to continue to recognise and support the case made to it by its subsidiary for the purpose of acquiring the NSL and to support the licensee to fulfil its obligations for compliance with all legal requirements applicable on the NLS as appropriate. Any changes which may impact on this should be addressed through the licensee's processes for managing organisational change.

61 We have a duty from DESNZ to use our power under TEA13 section 97 to require licensees and tenants operating on a NLS, class A and B carriers of nuclear material (approved under regulation 14 of NISR03), developers of a civil nuclear construction site (as defined under section 70(3) of TEA13) and persons who are in the GDA process but who have not yet received a decision in respect of that design, to inform us of any change or proposed change in ownership or control that involves a change of 5% or more (or less than this if the change is of such a nature that the owner of the new stake would obtain the right to appoint person(s) to the Executive board or equivalent).

62 We must be informed within 10 days of the relevant party becoming aware of such a change and then we must provide this information to DESNZ within 5 days of having received it. This is an enduring obligation over the full life of the NLS until it is delicensed.

Section 2: Relicensing

63 Relicensing refers to the process of granting a new NSL to an existing NLS when there is a material change to the basis on which the existing NSL was granted [48] [49]. To effect relicensing a new NSL is granted and the existing NSL is revoked concurrently using NIA65 section 5(1)(a). Such changes include:

- Change of operator of the site: a NSL cannot be transferred from one body corporate to another (NIA65 section 3(1)(b)). Therefore, the prospective new licensee must apply for its own NSL before it can operate that site.

  Our assessment for a change in operator will consider the organisational capability of the prospective new operator against the expectations described in this document. We anticipate that where it is proposed to transfer the operation of a NLS from one body corporate to another, the new licensee will need to retain the majority of the existing personnel, at least initially. This is to ensure continued access to essential expertise and corporate knowledge. Any corporate restructuring, including staff changes, must be managed by the new licensee following its change management processes as part of its LCCAs for LC36 [50]. Significant changes to the organisation or resources will necessarily require significant assessment and we may expect to see a period of shadow working to gain assurance on the adequacy of the organisation before granting the new NSL.

  The site must always have a NSL in force, with the holder of the extant licence responsible for compliance with all legal requirements placed on it which are applicable on the NLS. When we have decided we can issue a new NSL to the prospective operator, we will write to the current and the prospective licensee to agree the time when the current NSL will be revoked and the new NSL comes into force;

- Proposed installation and operation of a type of prescribed nuclear installation that is not covered by the current NSL: This is typically the most onerous type of relicensing, which may require us to carry out a significant amount of assessment to gain assurance on the safety of the proposed nuclear installation. The application will need to include relevant information as described in this document. This will include sufficient design information and safety submissions for the proposed installation and evidence on the organisational capability required to install and operate it. A SJR will be required unless the applicant can demonstrate that an extant SJR is in place which bounds the new prescribed nuclear installation.

Provided an adequate SJR is in place, the new NSL may be granted before the safety case for its installation and operation is finalised, with further work progressed in line with LCCAs to support a request for us to permission its installation and operation. This approach is similar to that for the licensing process for new nuclear sites, where a PCSR is not necessary at the point of NSL grant;

- Extension of the nuclear site boundary: The site boundary may need to be extended to bring additional land within the NLS boundary to provide adequate space for a new installation or plant on site or to carry out other activities etc. The licensee will need to demonstrate that it has appropriate security of tenure for this additional land and, via a SJR, that the land is suitable for its intended use. The site boundary plan (Annex 4) will need to be updated accordingly and attached to the new NSL.
- Any transfer of land between two adjacent, independent NLSs will require relicensing of both sites, and this will need to be coordinated to occur simultaneously. Changing the site boundary to remove land from the NLS is covered under delicensing (section 3).

64 Where relicensing is required, the applicant must contact the CNI and provide an application dossier containing sufficient information to enable us to assess the proposed changes. The dossier should provide all the required information to justify the proposed relicensing, including a new or revised SJR if appropriate [48]. In addition to information on the specific change, this should include, as appropriate, evidence demonstrating the adequacy of organisational capability and LCCAs etc required to operate the site safely.

65 We will assess the application in line with our standard processes and policies to ensure that it meets the requirements for issuing a new NSL. Where the application is for a new nuclear installation, the assessment process will the substantively the same as that for issuing a new NSL, including a fundamental assessment of the design and safety case for that installation. For other changes, the assessment will be proportionate to the nature and nuclear significance of the change and build upon, as appropriate, the evidence used to support the grant of the extant NSL.

66 We will consider the licence instruments associated with the extant NSL. Only those still necessary will be confirmed at the point of relicensing [48]. Where the site has been issued with a Consent for a decommissioning project under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (EIADR99), this will continue to apply to the site without any action required. The extant NSL holder is responsible for compliance with the EIADR99 Consent.

67 As noted earlier, NIA65 Section 3(2) places a requirement on us to consult the appropriate environment authority before granting a new NSL to an existing NLS. As with applying for a new NSL, we recommend that the prospective applicant contacts us to start pre-application advice. Following an initial assessment and taking account of the nature of the proposed relicensing and how much detailed assessment will be required, we will be able to provide an estimate of the timescale for processing the relicensing application and establish an intervention strategy. This may take just a few months in straightforward cases to over a year for a new nuclear installation. The prospective applicant should also consider if it needs to take any action with regards to the requirement for a FDP, such as revising an existing FDP or submitting a FDP to the SoS for approval (Annex 1).

Section 3: Delicensing

Background

68 Delicensing is a generic term that is commonly used to refer to the process of removing a NLS or part of a NLS from the licensing regime and ending the licensee's POR. Whilst these two processes may often be progressed concurrently it is important to note that removing a site/part of a site from the NSL and ending the POR are independent and distinct legal and regulatory processes. In this section, delicensing is used as a generic term covering both processes unless otherwise indicated.

69 A NSL can be revoked, that is fully removed such that the whole site is removed from the licensing regime (NIA65 section 5(1)(a)) or varied to remove an area of the site from the NLS (NIA65 section 3(12)). There is also currently provision for the licensee to unconditionally surrender the NSL (NIA65 section 5(1)(b)), although this is strongly discouraged as it bypasses the standard regulatory control and process that ensures a NSL is only removed when relevant criteria are met and it would not impact safety (note that the provision for licence surrender is expected to be removed when section 303 of the Energy Act 2023 (TEA23) [51] comes into force).

70 Usually, the licensee's POR for the NLS ends once there ceases to be any danger from ionising radiations from anything on the site or the part of the site in question and we have given notice in writing of this to the licensee (or under less common conditions indicated in NIA65 section 5(15)(b) and (c), which are not considered further in this section). This is independent to whether a NSL is in force or not. The main effect of ending the POR is that it ends the cover period for NTPL. In the event that the licensee ceased to provide NTPL cover for an area of the site for which the POR has ended we would not allow the licensee to carry out any further activities that could prompt third party liability claims due to nuclear occurrences on that part of the site. For example, we could use our powers under the LCs to prevent the licensee from using that part of the site for the purposes of installing a new installation, or from bringing nuclear matter onto that part of site.

71 We continue to regulate a NLS whilst it remains a 'GB nuclear site' as defined in TEA13, that is a site for which a NSL remains in force and/or the POR has not ended. Where the NSL has been removed but the POR has not ended, we can continue to regulate the site through regulatory directions that we consider appropriate for preventing, or giving warning of, any risk of injury to any person, or damage to any property, by ionising radiations from anything remaining on the site (NIA65 section 5(5)) and to continue to mark the limits of the site (NIA65 section 5(6)) until the POR is subsequently ended.

72 Revoking/varying the NSL and ending the POR are independent and NIA65 does not explicitly require these to be carried out together or in any particular order. However, we discourage removing the NSL without also ending the POR unless there is a good reason to do so as the resultant reliance on regulatory directions provides for reduced and less flexible regulatory control compared to LCs. Maintaining a NSL after ending the POR will maintain regulation of the site under the NSL, which may be unnecessary given the nature of the site. As such, we expect in most cases that the NSL and the POR will be ended simultaneously.

73 Notwithstanding the above, for the purposes of NIA65 the site continues to be a NLS after its NSL has been revoked or varied and the person to whom the NSL was granted continues to be a licensee in perpetuity. The SoS for England and Wales and Scottish Ministers must maintain a list showing every site in respect of which a NSL has been granted (NIA65 section 6). Sites for which the NSL has been revoked must remain on this list until at least 30 years have passed since the end of the POR for that site.

74 Where delicensing is required, the applicant must contact the CNI and provide an application dossier containing sufficient information to enable us to assess the proposed delicensing. We will assess the application in line with our standard processes and policies to ensure it meets the relevant requirements to delicense.

Revocation and variation of the licence

75 We have discretion to revoke or vary a NSL under NIA65 sections 5(1)(a) and 3(12), respectively. In practice, the process is usually initiated by the licensee and supported with an appropriate application. The process and requirements for revoking a NSL for the entire NLS or varying the licence to remove part of the site from the NLS are generally the same [52] [53].

76 The licensee should submit an application in support of the proposed licence revocation or variation, which includes:

- the reasons for the proposed change and justification;
- a statement that the area of site to be released from the NSL will not be used for any purpose that requires such a NSL (i.e. for the purpose of installing or operating a nuclear reactor or other type of prescribed nuclear installation), with supporting evidence;
- for NSL variations, details of relevant changes including changes to the site map, security arrangements, emergency plans and organisation changes;
- where the application is to also end the POR, robust evidence demonstrating that there is no danger from ionising radiations from anything on the site/part of site in question. The evidence required is discussed in our guidance document *Assessment for the delicensing of a nuclear licensed site* [54].

77 When we are assessing an application to revoke a NSL we must consult with the relevant environment authority. Similarly, when assessing applications for NSL variations we will consult with the relevant environment authority if the variation relates to or affects the creation, accumulation or disposal of radioactive waste, although our usual practice is to consult on all NSL variations.

78 As part of this process to vary a NSL, we will consult with the appropriate environment authority if the variation relates to or affects the creation, accumulation or disposal of radioactive waste (NIA65 section 3(13)).

79 When a NSL has been revoked or surrendered we may direct the licensee to deliver up or account for the NSL to such persons as we specify (NIA65 section 5(4)). In practice, we do not normally exercise this power as we do not usually consider it necessary for a revoked NSL to be returned.

80 We cannot transfer an excluded part of one NLS into another NLS; we would need to relicense the other NLS to expand it to include the part that had been excluded from the first NLS.

Changes to the regulation of sites following delicensing

81 When a site ceases to be a 'GB nuclear site' as a result of the delicensing and ending of the POR, there is a significant change to the regulation of that site and any future activities that take place on it. In particular, we will cease being the enforcing authority for most legal requirements applying to the site and HSE will become the enforcing authority for HSWA74 and its relevant statutory provisions (Annex 1) and in any situations where we had been the enforcing authority for any manufacturers of certain articles and substances used exclusively or primarily in the installation, operation or decommissioning of that NLS. The relevant fire and rescue services will also become the enforcing authority for the Regulatory Reform (Fire Safety) Order 2005 (RRO05) and Fire (Scotland) Act 2005 (FSA05). We will however remain the enforcing authority for any on-going projects to decommission the site consented under EIADR99 until they are complete.

82 Any environmental permit in force for the site will be unchanged by delicensing and will continue to be enforced by the relevant environment authority until the permit is surrendered. There are some exemptions from the permitting regimes for certain radioactive substance activities (such as keeping and using radioactive material and accumulating radioactive waste) when they take place on a NLS, which will disapply when a site ceases to be a 'GB nuclear site'. The site operator should engage with the relevant environment authority to establish whether additional permits, or variation to existing permits, is needed to cover any radioactive substance activities taking place on the site.

83 For land owned by the Nuclear Decommissioning Authority (NDA), the SoS must grant appropriate de-designation directions before the delicensed land can be sold or transferred. We may be asked to provide information to support this, but it is not part of the delicensing process.

Annex 1: Nuclear site licensing and the law

Nuclear Installations Act 1965

1 NIA65 [55] has three key purposes: nuclear site licensing; prohibition of certain operations; and provision of a NTPL regime.

- Nuclear site licensing: NIA65 indicates that no site may be used for the purpose of installing or operating a nuclear reactor or other installation of a prescribed kind (as described below) unless a NSL to do so has been granted and is in force. This applies to sites in GB including sites situated wholly or partly in or under the territorial sea adjacent to the United Kingdom. ONR's regulatory authority covers the entirety of such sites.

  The licensing function is administered in GB by ONR (and in Northern Ireland by the SoS, although to date there have never been any nuclear installations in Northern Ireland). The sections of NIA65 relating to the licensing of sites (sections 1, 3 to 6, 22 and 24A) are "relevant statutory provisions" for the purposes of Part 3 of the TEA13, and ONR has a legal duty to make adequate arrangements to enforce these relevant statutory provisions. ONR recovers its costs from licence applicants and holders through NIA65 section 24A;

- Prohibition of certain operations: Sites cannot be used for processes for the enrichment of uranium (to increase the proportion of the isotope U-235) or the extraction of plutonium or uranium from irradiated matter, except under, and in accordance with the terms of, a permit in writing granted under NIA65 section 2. Such a permit is usually issued in writing by the SoS, although DESNZ and ONR have an agreement in place that allows ONR to perform this function where the use of the site is for the purpose of research and development. This permit is separate to, and independent of, the NSL that will also be required for such a site; and

- Nuclear third party liability: NIA65 imposes a strict liability insurance regime on operators of NLS for injury to persons, damage to property, or significant impairment of the environment, caused by a nuclear occurrence, up to 30 years after the date of the occurrence that gave rise to the claim (NIA65 section 15). It requires operators to have in place insurance or other means to satisfy third party claims for compensation against the licensee within the limits prescribed by NIA65 and the Nuclear Installations (Prescribed Sites and Transport) Regulations 2018 [56] and for those arrangements to be approved by the SoS, DESNZ, Ministry of Defence (MoD) or the Scottish Government, as appropriate.

ONR has no authority or responsibility regarding licensees' NTPL arrangements, but we will seek confirmation that approved arrangements are in place during the licence application process.

NTPL cover must be in place by the time section NIA65 section 19(1) applies in relation to the NLS. This is typically when the NSL is granted. However, it can be deferred, where justified, through NIA65 section 3(9) which provides for the NSL to include provision about when NIA65 section 19(1) is to start to apply in relation to the NLS. For example, the likelihood and consequences of a nuclear occurrence on the site resulting in a NTPL claim for nuclear damage (personal injury, property damage or significant environmental impairment) may be negligible before nuclear fuel is brought onto site, so it may be appropriate to defer NTPL cover until this point. Where the NSL includes such provision, NIA65 section 19(1) will start to apply at the time indicated in the provision or when the NLS is first used for the operation of a nuclear installation, whichever is the earliest (NIA65 section 3(11) refers).

The licence applicant can make a case to ONR for when NIA65 section 19(1) should start to apply as part of the licence application process, either as part of the initial application dossier or during the licence application assessment before NSL grant. We will consider if it is acceptable based on consideration of the likelihood and magnitude of any potential nuclear damage that could occur during the deferral period. If we find the proposal acceptable, we must also gain consent for the provision from the SoS.

Licensable nuclear installations

2 The types of installations restricted to NLSs are nuclear reactors (other than a nuclear reactor comprised in a means of transport, whether by land, water or air) and any other kind of installation that has been prescribed.

3 Nuclear reactor is defined in NIA65 section 26 and includes:

- reactors in Gigawatt-scale nuclear power stations;
- Small Modular Reactors (SMR) and Advanced Nuclear Technologies (ANT);
- research reactors.

4 NIA65 section 1(1)(a) is disapplied where the nuclear reactor is comprised in a means of transport (RCiMT). The decision on whether a nuclear reactor is a RCiMT and when the RCiMT exemption would disapply requires case by case technical judgement for specific applications and it is recommended to seek advice from ONR in such cases.

5 Nuclear reactor is defined in NIA65 section 26 as any plant (including any machinery, equipment or appliance, whether affixed to land or not) designed or adapted for the production of atomic energy by a fission process in which a controlled chain reaction can be maintained without an additional source of neutrons. Fusion energy facilities are explicitly not covered by NIA65 (as indicated in section 1(2A)).

6 Other kinds of installations requiring a NSL are prescribed in the Nuclear Installations Regulations 1971 (NIR71) [57] and, in summary, are those designed or adapted for:

- the carrying out of any process involved in manufacturing fuel elements from enriched uranium or plutonium;
- the carrying out of any process involved in producing alloys or chemical compounds from enriched uranium or plutonium;
- the carrying out of any process involved in producing enriched uranium or plutonium from any alloy or chemical compound containing enriched uranium or plutonium, respectively;
- incorporation of enriched uranium or plutonium in any device designed to form part of a nuclear assembly or designed for irradiation in a nuclear reactor;
- installing a nuclear assembly for the production of neutrons and containing enriched uranium or plutonium and in which a neutron chain reaction can be maintained with an additional source of neutrons;
- processing irradiated nuclear fuel except where this is for assay or similar purposes;
- the storage of:
  - fuel elements containing enriched uranium or plutonium;
  - irradiated nuclear fuel; and
  - bulk quantities of any other radioactive matter which has been produced or irradiated in the course of the production or use of nuclear fuel (annex 6 for more information on bulk quantities);
- any treatment of irradiated matter which involves the extraction of plutonium or uranium or treatment of uranium to increase the proportion of U-235; and
- the production from nuclear matter, not being excepted matter, of isotopes for industrial, chemical, agricultural, medical or scientific purposes.

7 UK Government may prescribe other types of installation where it is considered appropriate. UK Government policy on managing radioactive substances and nuclear decommissioning [58] is to prescribe geological disposal facilities (GDF) so that a future GDF will require a NSL for its construction and operation (Annex 5), and to consider whether near-surface disposal facilities should also be prescribed.

8 Prospective operators of a site should refer to NIA65 and NIR71 to determine whether the type of installation they wish to install and operate requires a NSL. Further advice may be obtained from ONR on request via **contact@onr.gov.uk**.

The nuclear site licence and licence conditions

9 The NSL lists the nuclear installations that are to be installed or operated on the NLS; under NIA65 section 3(3), where we consider it appropriate, two or more installations in the vicinity of one another may be treated as being on the same site and covered by the same NSL (for example, in the case of two installations on sites opposite one another and separated by a public road). Once granted, a NSL remains in force for an indefinite period. It can remain valid for the entire lifecycle of a site from construction and commissioning through to operation, until the final stages of decommissioning and clean-up. However, if there are any material changes to the basis on which the NSL was granted the licensee may need to obtain a new NSL to continue to use the NLS lawfully. A NSL is not transferable.

10 NIA65 provides for a NSL to be granted to a named body corporate that will use a specific and defined site for the purpose of installing or operating a nuclear reactor and/or installations of a prescribed kind.

11 Where there are to be substantive changes to the NLS or its intended use, such as an extension to the site boundary, changes to the installations on the site or a change in ownership, then the site will need to be relicensed. To effect relicensing a new NSL is granted and the existing NSL is revoked concurrently using NIA65 section 5(1)(a) [48]. We also, by NIA65 section 3(12), have the power to exclude any part of the licensed site from the licence by variation, typically as part of delicensing.

12 A register of extant NSLs is available on our website [59].

13 NIA65 section 4(1) requires us to attach conditions to each NSL which we consider necessary or desirable in the interests of safety (both in normal circumstances and in the event of any accident or other emergency on the site), which can include conditions with respect to the handling, treatment and disposal of nuclear matter. NSLs typically have 36 standardised LCs attached covering key aspects of operating a nuclear site safely [31], all of which apply whilst the NSL is in force. NIA65 section 4(5) allows us to vary or revoke any LC attached to a NSL at any time if it is judged appropriate.

14 Most LCs are non-prescriptive and goal-setting, which allows the licensee to develop LCCAs that are appropriate and proportionate for the site's activities and the control of associated hazards and risks. The LCCAs will be an essential part of the licensee's safety management system. As discussed in Section 1, adequate arrangements for compliance with some key LCs will need to be in place before we will grant a licence, with detailed arrangements for compliance with other LCs developed later.

15 Once the NSL has been granted, the licensee must comply with the NSL and its LCs. This provides us with both a principal and practical means for overseeing nuclear safety on a NLS. That is because the LCs provide us with powers to issue directions, approvals, consents, specifications, notifications and agreements, enabling us to exert appropriate regulatory control over activities on site. These powers enable us, for instance, to approve particular arrangements such that they cannot be changed without our further approval, or to place hold points on activities such that the licensee requires our consent to proceed. Details on how the LCs are used by ONR, alongside the enforcement of other statutory provisions of TEA13, to regulate nuclear safety on a NLS are on our website [60] [61] and described below.

Energy Acts 2013 and 2023

16 The Energy Act 2013 Part 3 [62] established ONR as a statutory corporation and defined our purposes covering nuclear safety, nuclear site health and safety, nuclear security, nuclear safeguards on GB nuclear sites and the safety of civil transport of radioactive material in GB. To deliver this function, TEA13 section 82 requires ONR to make adequate arrangements for the enforcement of the relevant statutory provisions. The relevant statutory provisions of TEA13 are the provisions of TEA13 part 3,nuclear regulations made under TEA13 section 74, provisions made by or under NIA65 sections 1, 3-6, 22 and 24A and the provisions of the Nuclear Safeguards Act 2000 [63]. A site is a GB nuclear site where it has a NSL in force and/or the licensee's POR for the NLS has not ended. We are responsible for ensuring that licensees of GB nuclear sites comply with all the associated legal requirements in these areas until it ceases to be a GB nuclear site.

17 NIA65 was amended by TEA23 [51] in September 2024 to extend the definition of a site to include a site that is wholly or partly in or under UK territorial waters. Other amendments in TEA23 relating to the criteria for delicensing nuclear sites (collectively referred to as Proportionate Regulatory Control; PRC) have not yet entered into force.

Health and Safety at Work etc. Act 1974

18 HSWA74 [64] makes provisions for securing the health, safety and welfare of persons at work and for protecting others against risks to health or safety in connection with the activities of persons at work. HSWA74 and its relevant statutory provisions apply to activities taking place on a NLS.

19 HSWA74 introduces a general requirement that risks are reduced So Far As Is Reasonably Practicable (SFAIRP), also commonly referred to ensuring risks are As Low As Reasonably Practicable (ALARP). This guiding principle to minimise risks while also recognising the need for proportionality and balancing the cost of risk reduction with the benefit achieved, is embodied in our process for assessing applications for NSLs and generally in our approach to regulation of nuclear sites [65] [66]. Our determination of whether risks, including those from ionising radiations from anything on a nuclear site, are reduced ALARP is based on our enforcement of requirements defined in law and Approved Codes of Practice (ACoPs), as well as in ONR guidance such as SAPs [15] and technical assessment guides [40] and in other guidance that ONR considers to be relevant good practice as defined in [66].

Justification of practices

20 Justification is a principle of radiation protection embodied in successive European Basic Safety Standards Directives which requires EU member states to ensure that the benefits of using ionising radiations in a particular situation outweighs the detriment to health that may be caused. The requirements for justification were translated into UK law by the JoPIIRR04 [32], which remains in force. For nuclear power stations, and most prescribed civil nuclear activities, the Department for Environment, Food & Rural Affairs (DEFRA) is the justifying authority.

21 Activities that are the inevitable consequence of a justified practice do not need their own separate justification [67]. This means that the management and disposal of radioactive waste generated from the operation of a nuclear reactor, does not need a separate justification.

22 Practices associated with a nuclear installation will need to be justified before it can operate. Prospective licence applicants can check if their proposed practice or class of practice is already justified in the Justification Register [68], or seek advice from DESNZ.

Other legislation relevant to licensed nuclear sites

23 A wide range of legislation applies to a NLS, including relevant statutory provisions under HSWA74 covering safety, and legislation for emergency planning, security and safeguards. We have functions under and are the enforcing authority for many pieces of legislation on a NLS. Some of the key ones are listed below with links to further information and guidance in relation to compliance:

- The Management of Health and Safety at Work Regulations 1999 (MHSW99) [69];
- The Nuclear Industries Security Regulations 2003 (NISR03) [9] [35];
- Nuclear Safeguards (EU Exit) Regulations 2019 (NSR09) [70] [36];
- The Ionising Radiations Regulations 2017 (IRR17) [71] [72];
- The Radiation (Emergency Preparedness and Public Information) Regulations 2019 (REPPIR19) [73];
- The Control of Major Accident Hazards Regulations 2015 (COMAH15) [74];
- The Construction (Design and Management) Regulations 2015 (CDM15) [29] [75];
- The Pressure Systems Safety Regulations 2000 (PSSR2000) [76];
- The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR02) [77];
- The Lifting Operations and Lifting Equipment Regulations 1998 (LOLER98) [78];
- The Provision and Use of Work Equipment Regulations 1998 (PUWER98) [79];
- The Regulatory Reform (Fire Safety) Order 2005 (RRO05) [80]/Fire (Scotland) Act 2005 (FSA05) [81];
- Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 [82] [83].

24 The Health and Safety (Enforcing Authority) Regulations 1998 (HSEAR98) [84] regulation 2A defines a new nuclear build site as a site which is immediately adjacent to a GB nuclear site ("the associated site") and is, or forms part of, a construction site where construction work is being carried out wholly or mainly for the purpose of the installation of one or more nuclear installations on the associated site by or on behalf of the licensee. A site is not a new nuclear build site if, on the date construction work starts on that site, there is a nuclear installation installed on the associated site. We will be the health and safety regulator for premises which are or are on the new nuclear build site, including for the activities being carried out in those premises, and will carry out this duty as part of our regulation of the adjacent NLS under HSEAR98 regulation 4A [84].

25 The licensee and other dutyholders (e.g. contractors working on site) must have appropriate arrangements in place to ensure compliance with these legal requirements on the NLS and on any adjacent new nuclear build site.

Transport of Radioactive Material

26 ONR is the competent authority and enforcing authority for the civil transport of Class 7 dangerous goods (radioactive material) in GB by road and rail. These statutory duties are conferred on ONR by The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG09) [85] and TEA13. ONR is also the enforcing authority for IRR17 in relation to civil transport in GB and regulates security of civil transport of radioactive material under NISR03. Further information is in [86] and [87].

Annex 2: Early engagement for regulatory pathways and pre-application advice

Early engagement framework

1 The first formal phase of the licensing process is entry into an optional, but highly recommended, pre-application advice and guidance process. ONR, the Environment Agency and NRW have developed a framework for early engagement with any organisation seeking to deploy new nuclear technology in GB [88]. This structured framework for early engagement can be applied to pre-licence application engagement in relation to any type of nuclear installation. In the case of a nuclear reactor, this engagement may take place prior to a requesting party entering GDA (Annex 3). For nuclear installations not entering GDA, this would precede entry into the licensing process.

2 This flexible voluntary framework aims to provide advice and guidance both on the technical design of a new installation and on the potential pathways through optional and mandatory regulatory processes and ONR's expectations at the point of formal submission of a licence application [89].The framework also provides an opportunity for a potential GDA requesting party or licence applicant to provide details on their proposed project such as design, organisational maturity, site selection and proposed deployment timescales to build regulators' confidence in the potential for the proposed project to meet regulatory expectations. The overall aim of early engagement is to help a potential applicant prepare a 'right first time' licence application to expedite the application assessment and NSL grant.

3 Entry into early engagement is dependent on:

- DESNZ advising ONR of a successful due diligence check; and
- A charging agreement between ONR and the applicant being agreed.

4 The first and obligatory stage of early engagement is a one-day meeting at which applicants present the proposed technology and plans for deployment. At this meeting the regulators will set out the UK regulatory framework (including an overview of the GDA, licensing and permitting processes, where applicable) and the regulatory pathways available, highlighting any associated project risks [89] [88]. The one-day engagement will allow regulators to consider the applicant's readiness to proceed further with early engagement.

5 Further early engagement is more detailed and focussed on key regulatory or technical areas. It can be in the form of a series of up to ten structured technical workshops on agreed subjects, and/or a preliminary design review (PDR) of a proposed design, where the applicant can submit for regulatory review up to six short reports covering key aspects of the design that they consider present the greatest project risks, or where regulatory insight would be of most value [90].

6 Early engagement is intended to provide a forum for information exchange on technical and regulatory matters between an applicant and the regulators, and to inform a decision on progressing further into regulatory processes, including the licensing process. The framework is not intended to provide an indication of whether a design is ready to enter into GDA or whether an application for a NSL would be successful nor to replace the need for further detailed engagement before a licence application is made.

Pre-application advice

7 ONR will produce a pre-application intervention strategy that sets out the approach that it will take for effective engagement during this stage. This intervention strategy is specific to the particular application but follows a generic format that is tailored to reflect the specifics of the application and the applicant's proposed schedule.

8 A standard approach has been developed to deliver a programme of engagements and interventions in the period leading up to the formal submission of an application for a NSL for us to provide advice on the licensing process and the expectations placed on the prospective licence applicant. This is typically organised around five 'cornerstones' which collectively cover around 45 topic areas. The cornerstone areas are:

- Site activities (this includes matters relating to ONR's nuclear site health and safety purposes) and licence compliance arrangements;
- Safe design (safety case), including expectations for a SJR and a preliminary safety report on the design claims, arguments and pathway to substantiation evidence;
- Organisational capability;
- Security and Safeguards; and
- Licensing, land and legal matters.

9 Not all topic areas are activated during the pre-application phase – the focus is on the key areas required to be in place at the point of application and those required to develop the application dossier. As the application submission approaches, additional topic areas are activated as the project prepares to move into the assessment phase. ONR's requirements which need to be in place at the point of application are identified below and will be documented in the project pre-application phase intervention strategy. The intervention strategy will also describe the engagement structure and the governance arrangements for the project.

10 In the early stages of engagement we provide advice and guidance to the potential applicant as it:

- identifies a suitable site;
- establishes a body corporate;
- develops organisational capability; and
- develops management arrangements.

11 LCCAs for 'building block' LCs, which cover arrangements for capabilities which are particularly important in the early stages when an organisation is developing towards being capable of holding a NSL and establishing capability to deliver nuclear safety related construction, must be fully developed and implemented at the point of application. The key 'building block' LCs are:

- LC1 Interpretation;
- LC6 Documents, records, authorities and certificates;
- LC10 Training;
- LC12 Duly authorised and other suitably qualified and experienced persons;
- LC13 Nuclear safety committee;
- LC14 Safety documentation;
- LC17 Management systems; and
- LC36 Organisational capability.

12 We recommend that LCCAs for these 'building block' LCs are developed using the meanings assigned to expressions in LC1 (Interpretation).

13 The scale and pace of activation of specific topic areas is dependent on the requirements at the point of the licence application which depends on the applicant's activities and plans and the associated schedule.

14 Requests for early engagement should be made to contact@onr.gov.uk.

Procurement of long lead items in advance of licence grant

15 Once a NSL has been granted, the licensee will manage procurement and quality assurance of safety-related equipment for off-site manufacture through its arrangements. However, for new civil reactor build, there may be cases where orders for long lead items, such as reactor pressure vessels, need to be placed in advance of a NSL being in force or even before a prospective licensee is identified, so that they are available in a timely manner once a site is licensed.

16 In these cases, an organisation (the purchaser), such as the reactor vendor or prospective licensee, may choose to place orders for the manufacture of these items in advance of a licensee being established, with the intention that the licensee will ultimately take ownership of these items in future for the construction of its nuclear installation.

17 There are commercial and regulatory risks with this approach. The risks arise due to the ultimate customer for the items (the licensee) not being involved in the project but needing to accept the items in future with confidence that they meet the required standards for safety based on manufacturing records and quality assurance carried out during manufacture etc, such that it would meet our expectations when nuclear-safety related construction of the installation is permissioned.

18 These risks may be mitigated in several ways, including through our preferred approach for the purchaser to obtain a 'licensee certificate' from an independent third party, which provides confidence on the adequacy of the purchaser's management system and quality assurance arrangements [17]. We will also usually request that the purchaser makes provisions in its contractual arrangements with suppliers to give ONR appropriate access to enable us to oversee the manufacture and quality management arrangements for safety-related items, regardless of the supplier's location and tier in the supply chain.

19 HSWA74 section 6 places duties on the person responsible for the design and manufacture, import or supply of articles for use at work to ensure that they are safe to use at work. For items to be used exclusively or primarily in the installation, operation or decommissioning of a GB nuclear site (or authorised defence site), as would be the case for such long lead items, such as reactor pressure vessels, we have the power to enforce against this requirement under HSEAR98 section 4A.

20 We advise that plans for long lead items are discussed with us during early engagement.

Annex 3: New nuclear power stations and generic design assessment

1 We will not grant a NSL for a new nuclear power station unless the design meets the high safety, security and environmental protection standards required in GB. ONR, the Environment Agency and NRW provide the GDA process to assess the safety, security and environmental aspects of new reactor designs against legal and regulatory requirements to determine the level of confidence that a particular reactor design could be deployed safely in GB [91]. The regulatory conclusions from the GDA process on a particular generic design are generally valid for ten years, provided there are no substantive changes to aspects of the design or applicable codes and standards etc, that could impact on those conclusions. The 10-year period is representative of expectations in LC15, ONR SAPs and International Atomic Energy Agency (IAEA) standards for periodic safety reviews to be carried out typically every ten years. If a proposed development is based on a GDA design more than 10-years old then In line with ONR's Risk-Informed and Targeted Engagements (RITE) policy [92] ONR would carry out proportionate reassessment of changes to standards and design in accordance to their risk significance and proportionality.

2 The GDA process is a non-statutory, voluntary process which is typically carried out in advance of or in parallel to applications for a NSL to build reactors at specific sites. When GDA has not been, or is not being undertaken, design assessment is carried out on a site-specific basis as part of the licensing safe design cornerstone theme. The purpose is to confirm that the design is fundamentally adequate and compatible with UK regulatory requirements. Requesting parties seeking a GDA for their reactor design must first approach DESNZ to get its support to progress the GDA with the regulators [91]. DESNZ will gain assurance on the ability of the requesting party to meet the requirements for undertaking a GDA and will confirm that it is able to comply with its obligations under NISR03.

3 Use of the GDA can be particularly useful as a means to receive regulatory feedback on the design at an early stage so that any issues or shortfalls against regulatory expectations can be resolved at the design stage, potentially mitigating risks to future licensing and permissioning of the installation at a specific site. The level of regulatory de-risking of the design is commensurate to the level of advancement in the design assessment at the time a NSL application is made.

Where GDA is being pursued, the highest level of regulatory de-risking of the design is achieved through a three-step GDA culminating in a DAC being issued by ONR. It is preferable that a design has progressed to at least step 2 before a NSL application is made. If GDA is not being undertaken, a site-specific design assessment is undertaken as part of the assessment of the NSL application. Where a reactor is to be deployed in a fleet, GDA may be helpful by providing an assessment of the adequacy of the generic design, leaving only site-specific design aspects to be considered in the NSL assessment.

4 The full GDA process has three assessment steps, with the assessment getting increasingly detailed in each step and thus providing increasing levels of confidence that the generic design meets the required standards [93]. Step 3 GDA involves a detailed assessment and if that shows that the design is acceptable, ONR will grant a DAC and the Environment Agency a Statement of Design Acceptability (SoDA). The generic safety case accepted through GDA will be based on a generic site envelope within which the plant is designed to operate safely. This generic safety case should be fit for use as a starting point to develop the safety case for installation and operation of that reactor type at a specific location. However, if an intended site has characteristics which lie outside the generic site envelope assumed in the GDA, the site licence applicant should demonstrate in its SJR that the proposed plant is acceptable at the intended site during licensing assessment; this may involve additional safety analysis and/or plant redesign.

5 There is the option to undertake a truncated two-step GDA in which the focus of the assessment is on the fundamental adequacy of the design and the associated safety and security cases. On successful completion of a two-step GDA, ONR will issue a GDA Statement which details the assessment work carried out and conclusions, including any remaining issues to be resolved, and an indication of confidence that the design is potentially suitable for deployment in GB based on the degree of assessment carried out. Similarly to in the case of a full GDA, if the intended site has characteristics which lie outside the generic site envelope assumed in the two-step GDA, the applicant will need to demonstrate in its SJR that the proposed plant is acceptable at the intended site and potentially do additional safety analysis and/or plant redesign. Further detailed assessment of the design equivalent to that done in GDA step 3 will be required prior to ONR permissioning the start of any nuclear-safety related construction. This further detailed assessment may be carried out as part of the assessment of the licence application, typically through provision of a site-specific PCSR for assessment.

6 The GDA process is a flexible process where the objectives and outputs can be tailored to the needs of the Requesting Party, based on aspects such as the relative maturity of the reactor design and detailed assessment by regulatory authorities in other countries.

There are a number of potential routes through GDA and licensing, which have different advantages and disadvantages and project risks to a successful NSL application given the different levels of confidence on the adequacy of the reactor design on entry into the licensing process (Table 2: Routes to licensing and the illustrative associated project risks). These risks are predominantly commercial risks for the applicant reflecting that with lower levels of scrutiny on reactor design on entry into licensing there is greater uncertainty on how long it will take to gain the licence and permission for installation and operation. GDA de-risks by establishing the adequacy of the reactor design and gaining confidence that it will gain permission to be installed and operated.

Table 2: Routes to licensing and the illustrative associated project risks

Route to licensing	Associated project risk
Full (3-step) GDA complete prior to entering licensing	Lowest risk
Full (3-step) GDA progressing in parallel with licensing	Low risk
2-step GDA complete prior to entering licensing	Increased risk
2-step GDA progressing in parallel with licensing	Increasing/medium risk
Preliminary design review of aspects of the design prior to licensing (in the early engagement process)	Significant risk
Limited targeted preliminary design review prior to licensing	High risk
Entry into licensing with early initiation of design review within the licensing framework at least up to the equivalent of GDA step 2 early in licensing	Very high risk
Entry into licensing without completion of any of the above steps	ONR will not accept such a proposal

7 The project risk appetite and suitability of the above routes can be discussed with ONR in the early engagement process.

8 The GDA process applies exclusively to nuclear reactor designs. There is no equivalent process for other installations of a prescribed kind. The design adequacy of these will be carried out during the site-specific licensing and permissioning process.

Use of reactor or nuclear installation designs assessed by international authorities

9 A prospective licence applicant may wish to deploy a type of reactor or nuclear installation in GB which has already been assessed by a regulatory authority overseas. Although we must confirm that the proposed nuclear installation meets specific GB requirements, our design assessment processes can take due consideration of relevant international design assessments, R&D and other experience to inform our own assessments. Such considerations should help reduce duplication of effort, allowing us to target areas of design difference and risk-significance, thereby accelerating the acceptance process with associated time and cost savings.

10 We encourage gap analyses to be carried out to provide a comparison between the technical assessment carried out (including details of the legal and design requirements and specifications, codes and standards etc used) and GB requirements to highlight where there are differences that will need to be addressed. To allow us to fully consider their work in our assessment, we may need to establish an agreement with the overseas regulatory authority, to give us appropriate access to their documentation and technical specialists. Relevant collaborative agreements are already in place with some regulators, such as the US Nuclear Regulatory Commission (USNRC) and the Canadian Nuclear Safety Commission (CNSC).

11 Similarly, where a reactor/nuclear installation has been installed or operated in another country this may also provide valuable experience which can be used by a prospective applicant when developing the safety case for its installation and operation in GB.

Annex 4: Site selection and site boundary and planning permission

1 Information provided with the licence application must demonstrate that the site is suitable to support the nuclear installation and safe nuclear operations. This is typically presented in a SJR [7]. As the SJR is part of documentation to justify the safety of the site it should be produced in line with arrangements the applicant is developing to demonstrate compliance with LC14.

2 The SJR should explain how the site-specific geological conditions, the proposed size of the site, local external hazards, and the proximity to local populations etc. are compatible with the construction and subsequent operation of the proposed nuclear installation. The SJR should reference aspects of the preliminary safety case but in less detail than needed for the PCSR that will support the start of nuclear-safety related construction. Detailed guidance on the function, content and format of a SJR is available [7].

3 The site for which a NSL is being sought should normally be a single contiguous area, with no disconnected/isolated areas, and should be fully encompassed by the SJR. The boundary of the NLS must encompass the nuclear installation and all licensable activities to be undertaken on the site. The site boundary should not, wherever possible, bisect or involve any buildings/structures or other features which would potentially impact adversely on compliance with LC2 requirements (for instance, confounding access control to the NLS if the boundary passed through a building or carpark). However, the site boundary does not necessarily need to encompass all structures or systems that form part of the safety case for the site. For instance, the safety case may justify that the presence of engineered off-site structures, such as coastal or flood defences, reduce the risk of site flooding SFAIRP. Where the operation or maintenance of off-site structures may affect safety on the licensed site, LC23 obliges the licensee to produce an adequate safety case to demonstrate the safety of such operations, and to identify the conditions and limits necessary in the interests of safety (operating rules). Licensees are obliged to ensure that operations are at all times controlled and carried out in compliance with operating rules. The licensee is required to take appropriate action should there be any indication that the safety of any operation or the safe condition of plant may be affected, including for any off-site structures featuring in the safety case.

Where appropriate, arrangements to comply with other LCs such as LC6 (documents, records, authorities and certificates), LC19 (construction or installation of new plant), LC21 (commissioning) and LC28 (examination, inspection, maintenance and testing) are required to be in place for such off-site structures. This is to ensure that an appropriate level of evidence is available to support the licensee's claims in its safety case to that which would be available if the structure was to be constructed on the NLS itself. We will assess the arrangements in place for such off-site structures as part of licensing. Such claims will be assessed by us as part of our assessment of site safety cases as part of the licensing process and also through the lifetime of the site, for instance through the periodic reviews of the site safety case required under LC15. It is common for a licensee to establish appropriate arrangements with the authority responsible for such off-site structures/systems to ensure they remain fit for purpose and continue to provide their safety function as claimed in the safety case in relation to the site.

4 For most sites which are surface based, the site boundary will only need to define the site at ground level, with the boundary deemed to extend vertically downwards to bring any sub-surface structures or radioactive materials in the ground within scope of the NSL. However, for a nuclear installation with an operational sub-surface component, such as a geological disposal facility, the sub-surface component may extend beyond the footprint of the surface component or be offset from it. A NLS may also be wholly or partly in or under UK territorial waters, so could include inshore parts of the site, for instance sea discharge lines or other inshore structures etc. The site boundary should be defined using appropriate mapping technology which can define the site in absolute and unequivocal terms.

5 The NSL will define the NLS boundary by reference to a map submitted by the prospective licensee. The map to be attached to the site licence should:

- be provided in electronic form (it may be provided on A3 paper although this is discouraged);
- have the scale and ordnance survey grid lines, or other appropriate mapping coordinates, clearly marked;
- cover the whole of the NLS, and identify its boundary in colour (usually red);
- include all underground workings;
- carry an unambiguous licensee's drawing reference and revision number;
- be clearly titled and dated;
- provide an ordnance survey grid reference (in the form AB 123456), or other appropriate mapping coordinate, for a significant point on the site or its boundary;

- show grid north, preferably using a rose-cross type identifier;
- include a clear indication of which areas of site are owned by the applicant and which areas are leased (together with the relevant Land Registry title numbers); and
- Include any associated new nuclear build sites (if agreed with ONR).

6 The aim is to define the site clearly, so that there can be no doubt as to its limit. Such clarity will assist the application of the NSL conditions and in establishing the extent of a licensee's strict liability for events on a site. If a nuclear new build site is defined, the boundary may be shown on the site map. Applicants considering using GPS data to define the site boundary may find it helpful to refer to guidance on the ordnance survey website [94].

7 Copies of NSLs are provided to DESNZ, or for sites in Scotland to the Scottish Government. The maps attached to the licences may be used by DESNZ and the Scottish Government to fulfil the obligations of the SoS and Scottish Ministers to maintain a publicly available list of licensed nuclear sites (NIA65 section 6). This includes a map(s) showing the position and limits of each site. The licence applicant should consider security implications when determining the level of detail of the installations on the site to be represented on the site map. The applicant may wish to seek advice from us on this point (or the MoD for defence-related sites).

8 In addition to a NSL, the developer may also need to obtain planning permission or development consent from the appropriate authorities. The grant of a NSL is separate to and independent of gaining planning permission. The planning permission does not need to have been obtained at the time of licence application or NSL grant, although it may be desirable to align the licensing and planning permission processes so that planning permission is received before or at the time of licence grant to provide confidence that the site is viable for the intended purpose. If the site has been licensed but planning permission is not obtained, then the licensee may choose to try again to obtain planning permission taking into account the reasons for refusal. Alternatively, the licensee may wish to apply to: (1) delicense the site; or (2) relicense it to another body corporate. If planning permission is not in prospect at the time of NSL grant, then before NSL grant ONR may request evidence that there is a credible plan in place to delicense the site or relicense it to another body corporate. The information provided in the SJR and application for planning permission should be consistent.

9 The planning requirements depend on the specific nature of the nuclear installation and potentially on which country in GB it will be sited in. For nuclear power stations, proposed in England and Wales that are NSIPs under the Planning Act 2008 [95] and which require a Development Consent Order (DCO) [96], the relevant government policy is the EN-7 [11], complemented by the overarching national policy statement for energy infrastructure (EN-1) [10], which provides policy and a criteria-based approach for the siting of nuclear power stations. In Wales, a nuclear power station may be a SIP under the Infrastructure (Wales) Act 2024 [97] and require an Infrastructure Consent Order (ICO). Currently, Scottish Government does not support any new nuclear power generation sites in Scotland [98].

10 For nuclear power stations that do not meet the criteria to be a NSIP or SIP or for sites which will contain other types of prescribed nuclear installations, planning permission is required under the Town and Country Planning (T&CP) regime [99], through the local planning authority.

Delicensed areas

11 Any person who may have suffered harm as a consequence of activities on a licensed nuclear site is entitled to make a claim for compensation for up to 30 years after the date of the occurrence which gave rise to the claim (NIA65 section 15). So, any area(s) of a NLS which are being delicensed, or which have previously been delicensed (whether through a licence variation under NIA65 section 3(12) or through an earlier relicensing) should remain identifiable over that period. This should be achieved by delineating the area delicensed by marking its boundary on the map in a distinctive manner. For example, if the licensed boundary is marked in red, by marking the delicensed area's boundary in green.

Annex 5: Licensing and regulating a future geological disposal facility

1 A GDF is an engineered facility designed for the final disposal of higher activity radioactive waste (HAW) deep underground in a stable geological environment, providing containment and long-term isolation of radionuclides from the biosphere [100]. A GDF will have an operational phase where it receives HAW for emplacement in the GDF, which is expected to last for over 100 years, before it is permanently closed, backfilled and sealed.

2 Given that the operation of a GDF will involve activities involving high hazard HAW packages, including spent nuclear fuel, the government considers that a GDF should require a NSL under NIA65 to ensure that these activities are carried out safely and securely and intends to prescribe a GDF so that a NSL is required as for any other installation of a prescribed kind. As for other nuclear installations, a NSL will need to be in force before any safety-related construction is carried out. A GDF will also require an environmental permit from the relevant environment authority.

3 A GDF will have an associated surface-based site to support the operational phase of the GDF to receive radioactive waste packages prior to their emplacement in the GDF for disposal. This surface site may need to be covered by a NSL if it used for the installation or operation of an installation of a prescribed kind. For instance, the surface site may host an installation for storing nuclear fuel or bulk quantities of radioactive waste to provide a buffer storage capacity to aid operations around the emplacement of waste packages into the GDF. It is expected that there would be a single licence for a GDF, which would include any surface-based installations as required.

Site selection and site suitability

4 Nuclear Waste Services (NWS) is the developer and prospective licence holder for a GDF. NWS will select a proposed site for a GDF through a consent-based site selection process currently underway [101] and judged against its own site evaluation criteria [102]. A GDF could be sited in the 'inshore' region, that is under the seabed inside territorial waters, with the surface facility on the mainland and offset horizontally from the GDF.

5 We have no formal role in this site selection process or the decision on the site selected for the GDF. However, we and the Environment Agency do provide regulatory advice and scrutiny to NWS on its technical development of the GDF design and associated safety case to ensure it meets the necessary standards for safety and security and environmental protection, and NWS' development towards being an organisation capable to hold a NSL through the Pre-Application Advice and Scrutiny (PAAS) programme [103]. This programme provides valuable regulatory advice to help NWS to prepare a licence application, but it does not replace the formal assessment of the GDF siting and design and organisational capability that will be carried as part of the standard assessment process for any licence application.

6 If a GDF is sited in England it will be designated as a NSIP and requires a DCO [95]. If a GDF is sited in Wales, it will be designated as a SIP and requires an ICO [97].

Licensing process

7 The process for applying for a NSL for a GDF and our assessment of the application will be the same as for any other licence application. The technical assessments of the GDF site and design will consider the specific aspects of a GDF, as appropriate. In particular, the SJR will need to cover the adequacy of the deep geology in which the GDF would be constructed and other factors relevant for a nuclear installation in a sub-surface environment [100].

8 In relation to defining the site boundary, this will need to include the boundary of the surface-based site and the sub-surface GDF. It is likely that the sub-surface GDF will extend beyond a downward projection of the surface site or may be substantially offset horizontally (particularly in the case of the GDF being in the inshore region). It is expected that the site boundary will be defined using 3-dimensional coordinates or mapping to define the boundary of the entire site.

Delicensing

9 A GDF will remain operational until it has permanently ceased receiving and disposing of waste and it has been put into its post-closure state where the vaults and tunnels are backfilled and permanently sealed to ensure long-term safety and isolation from the biosphere [100]. At this point, it is expected that there ceases to be any operational risk to the safety of workers or the public from ionising radiations and the site may meet the criteria for delicensing. The surface-based facility would also need to be decommissioned and delicensed as appropriate

10 After delicensing, a GDF would continue to be regulated under the environmental permit until such time that the permit can be surrendered.

Annex 6: Licensing of nuclear installations for storing, processing or disposing of bulk quantities of radioactive matter

Background

1 NIA65 section 1(3)(c) indicates that installations designed or adapted for storing, processing or disposing of bulk quantities of radioactive matter (that is matter which has been produced or irradiated in the course of the production or use of nuclear fuel) may be prescribed. NIR71 prescribes any installation designed or adapted for storage of bulk quantities of radioactive matter and it is anticipated that UK Government intends to prescribe geological disposal facilities in relation to disposal of bulk quantities of radioactive matter. NIA65 does not provide a definition or quantification of the term 'bulk quantities' of radioactive matter. To provide some certainty and clarity on how we will determine whether any proposed installation for storage or disposal of radioactive matter would require a NSL to be installed or operated, we have developed an approach to the quantitative interpretation of the term 'bulk quantities' in relation to the storage and disposal of radioactive matter [104].

2 The practical interpretation of 'bulk quantities' aims to:

- ensure a targeted, proportionate, consistent, and transparent approach to regulating the management of radioactive matter;
- focus on applying the licensing regime to those hazards that require it, without imposing inappropriate or disproportionate obligations on industry when there is already adequate regulatory scrutiny in place;
- secure public confidence; and
- continue to protect people and society from the hazards of the nuclear industry.

Interpretation of 'bulk quantities'

3 ONR will use the radionuclide specific values set out in the REPPIR19 as the basis for our interpretation of bulk quantities in the context of storage and disposal of radioactive matter, as follows:

In the context of storage: quantities of radioactive matter at or above 100 times the levels set out in REPPIR19 Schedule 1

4 A NSL will be required for the installation and operation of a storage facility if it is designed or adapted to store quantities of radioactive matter at or above 100 times the REPPIR19 level.

In the context of disposal: quantities of radioactive matter at or above 1,000,000 times the levels set out in REPPIR19 Schedule 1

5 A NSL will be required for the installation and operation of a disposal facility if it is designed or adapted to dispose of quantities of radioactive matter at or above 1 million times the REPPIR19 level.

6 In determining which radioactive matter (that is matter which is produced or irradiated in the course of production or use of nuclear fuel as defined in NIR71 regulation 3(1)) is to be included in this calculation, ONR will disregard:

- any quantity of irradiated nuclear fuel – installations designed or adapted for storage of such material require a NSL by virtue of NIA65 section1(1)(b) and NIR71 regulation 3(6)(b)
- in accordance with NIR71 regulation 3(6), any radioactive matter which is stored incidental to carriage
- sealed sources as defined in regulation 2(1) of IRR17

7 When calculating the quantity of radioactive matter, it will be broken down where possible into individual isotopes or groups of isotopes. For groups of isotopes, the most restrictive REPPIR19 value should be used. For a mixture of isotopes, ONR considers there to be a 'bulk quantity' if the sum of the quotients of the quantity of a radionuclide present (Q_P) divided by the quantity of that radionuclide specified in REPPIR19 Schedule 1 (Q_R) multiplied by the 'bulk quantity' multiplier for the relevant context (Q_{BQ}) exceeds one. Namely –

$$\sum \frac{Q_P}{Q_R Q_{BQ}} > 1$$

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Abbreviations

ACoP	Approved Code of Practice
ALARP	As Low As Reasonably Practicable
ANT	Advanced Nuclear Technologies
BEIS	Department for Business, Energy and Industrial Strategy (now DESNZ)
CDG09	The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009
CDM15	The Construction (Design and Management) Regulations 2015
CNI	Chief Nuclear Inspector
CNSC	Canadian Nuclear Safety Commission
COMAH15	Control of Major Accident Hazards Regulations 2015
DAC	Design Acceptance Confirmation
DCO	Development Consent Order
DEFRA	Department for Environment, Food & Rural Affairs
DESNZ	Department for Energy Security and Net Zero (formerly BEIS)
DSEAR02	Dangerous Substances and Explosive Atmospheres Regulations 2002
EIADR99	The Nuclear Reactors (Environmental Impact Assessment Decommissioning) Regulations 1999
EN-7	National Policy Statement for Nuclear Energy Generation
FDP	Funded Decommissioning Programme
FSA05	Fire (Scotland) Act 2005
GB	Great Britain
GDA	Generic Design Assessment
GDF	Geological Disposal Facility
HAW	Higher Activity radioactive Waste
HSE	Health and Safety Executive
HSEAR98	Health and Safety (Enforcing Authority) Regulations 1998
HSWA74	Health and Safety at Work etc. Act 1974
IAEA	United Nations' International Atomic Energy Agency

ICO	Infrastructure Consent Order
IRR17	The Ionising Radiations Regulations 2017
JoPIIRR04	Justification of Practices Involving Ionising Radiation Regulations 2004
LC	Licence Condition
LCCA	Licence Condition Compliance Arrangements
LOLER98	Lifting Operations and Lifting Equipment Regulations 1998
MHSW99	Management of Health and Safety at Work Regulations 1999
MoD	Ministry of Defence
MoU	Memorandum of Understanding
NDA	Nuclear Decommissioning Authority
NIA65	Nuclear Installations Act 1965
NIR71	Nuclear Installations Regulations 1971
NISR03	Nuclear Industries Security Regulations 2003
NLS	Nuclear Licensed Site
NM	Nuclear Material
NRW	Natural Resources Wales
NSC	Nuclear Safety Committee
NSIP	Nationally Significant Infrastructure Project
NSL	Nuclear Site Licence
NSR19	Nuclear Safeguards (EU Exit) Regulations 2019
NTPL	Nuclear Third-Party Liability
NWS	Nuclear Waste Services (formerly RWM)
ONR	Office for Nuclear Regulation
PAAS	Pre-Application Advice and Scrutiny
PAR	Project Assessment Report
PCmSR	Pre-Commissioning Safety Report
PCSR	Pre-Construction Safety Report
PDR	Preliminary Design Review
POR	Period of Responsibility
POSR	Pre-operational safety report (i.e. installation safety report)

PRC	Proportionate Regulatory Control
PSR	Periodic Safety Review
PSSR2000	The Pressure Systems Safety Regulations 2000
PUWER98	The Provision and Use of Work Equipment Regulations 1998
RCiMT	Reactor Comprised in a Means of Transport
REPPIR19	The Radiation (Emergency Preparedness and Public Information) Regulations 2019
RITE	Risk-Informed and Targeted Engagements policy
RRO05	The Regulatory Reform (Fire Safety) Order 2005
RWM	Radioactive Waste Management Limited (now NWS)
SAPs	Safety Assessment Principles for Nuclear Facilities
SFAIRP	So Far As Is Reasonably Practicable
SIP	Significant Infrastructure Project
SJR	Site Justification Report
SLC	Site Licence Company
SMP	Safety Management Prospectus
SMRs	Small Modular Reactors
SoDA	Statement of Design Acceptability
SoS	The Secretary of State for
SyAPs	Security Assessment Principles for the Civil Nuclear Industry
TAGs	Technical Assessment Guides
T&CP	Town and Country Planning
TEA	The Energy Act (2008, 2013 or 2023 as indicated)
UK	United Kingdom of Great Britain
USNRC	US Nuclear Regulatory Commission

Office for
Nuclear Regulation