



Department for
Business, Energy
& Industrial Strategy

NUCLEAR DECOMMISSIONING

Consultation on the Regulation of Nuclear
Sites in the Final Stages of
Decommissioning and Clean-Up

May 2018

Regulation of Nuclear Sites in the Final Stages of Decommissioning and Clean-Up

The consultation and impact assessment can be found on the BEIS section of GOV.UK:

Acknowledgements

BEIS formed a Steering Group to develop and refine the proposals in this consultation. This Steering Group consisted of experts from the Office for Nuclear Regulation, the environmental regulators (the Environment Agency, the Scottish Environment Protection Agency and Natural Resources Wales), the Health and Safety Executive, the Nuclear Decommissioning Authority. BEIS is grateful to all Steering Group members, as well as to colleagues from Defra, DCLG and the Scottish and Welsh Governments for their contributions.

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General information

Purpose of this consultation

This consultation seeks views on proposals to amend the legislation that underlies the regulatory framework for nuclear sites in the final stages of decommissioning and clean-up. The proposals are intended to enable a more flexible approach that can optimise waste management, thereby realising environmental benefits and reducing costs. Recognising the public interest in nuclear energy and radioactive waste management, the UK Government wishes to ensure that its consideration of these proposals is transparent and informed by a range of views.

Issued: 8 May 2018

Respond by: 3 July 2018

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Consultation reference: Regulation of Nuclear Sites in the Final Stages of Decommissioning and Clean-Up

Territorial extent:

The proposals for change outlined in this consultation relate primarily to legislation and guidance concerning the regulation of safety on nuclear licensed sites and nuclear third party liability under the Nuclear Installations Act 1965. This is a reserved policy area (i.e. applies across the United Kingdom). However, the proposals would have implications for regulations and associated guidance in other policy areas, some of which may be devolved, including environmental protection and radioactive waste management. The UK Government has therefore consulted the Devolved Administrations during the development of the proposals and the Devolved Administrations support the objectives. The UK Government will continue to work closely with the Devolved Administrations in taking any proposals forward.

How to respond

We wish to ensure that our consideration of the proposals is transparent and informed by a range of views. While we welcome views from all interested parties, we expect the following stakeholders will have a particular interest: local communities in the vicinity of existing nuclear sites, nuclear operators and liability owners, local authorities and members of the nuclear industry (including the radioactive waste management supply chain).

When responding, please state whether you are responding as an individual or representing the views of an organisation. If you are responding on behalf of an organisation, please make it clear who the organisation represents and, where applicable, how you assembled the views of members.

When considering responses to this consultation, we will give greater weight to responses that are based on argument and evidence, rather than simple expressions of support or opposition.

This consultation is being made available on the GOV.UK website and the BEIS Citizen Space website. Where possible, responses should be submitted using the questionnaire on the Citizen Space website at <https://beisgovuk.citizenspace.com/civil-nuclear-resilience/nuclear-sites-regulation> or by email to NuclearDecommissioning2@beis.gov.uk. In order to help us analyse responses, please provide details of your organisation/industry.

Additional copies:

You may make copies of this document without seeking permission. An electronic version can be found on the .GOV.UK website at <https://www.gov.uk/government/consultations/the-regulation-of-nuclear-sites-in-the-final-stages-of-decommissioning-and-clean-up>.

A Welsh translation of the Executive Summary is also available.

Confidentiality and data protection

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on the [GOV.UK](https://www.gov.uk/government/consultations/the-regulation-of-nuclear-sites-in-the-final-stages-of-decommissioning-and-clean-up) website at <https://www.gov.uk/government/consultations/the-regulation-of-nuclear-sites-in-the-final-stages-of-decommissioning-and-clean-up>. This summary will include a list of names or organisations that responded but not personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the [Government's Consultation Principles](#).

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

Email: enquiries@beis.gov.uk

Executive Summary

This consultation seeks views on proposals to amend the legislation that applies to UK nuclear sites in the final stages of decommissioning and clean-up.

Overview

The Department for Business, Energy and Industrial Strategy (BEIS) is responsible for the development of policy regarding nuclear energy and nuclear installations across the UK. This includes the policy, legislative and regulatory framework that relates to nuclear site decommissioning and clean-up.

Working with the regulators¹, the Devolved Administrations, other Government Departments and the Nuclear Decommissioning Authority (NDA), we have identified an opportunity to amend the legislation that applies to the final stages of nuclear site decommissioning and clean-up in order to enable a more sustainable approach to waste management and land remediation.

Summary of the current situation

The Nuclear Installations Act 1965 (NIA65) provides the legal framework for nuclear safety and nuclear third party liability. The NIA65 sets out a system of regulatory control based on a robust licensing process administered by the Office for Nuclear Regulation (ONR). Under this regime, a site operator is required to have a licence to use a site for specified activities such as the operation of nuclear power stations.

In addition to the nuclear site licensing regime, the NIA65 requires that financial provision is in place to meet claims in the event of a nuclear incident, as required under international law on nuclear third party liability.

In the early stages of decommissioning of a nuclear reactor, the spent fuel and higher activity wastes are removed and stored securely elsewhere, resulting in radiological hazards on the site falling by over 99%. In the final stages of decommissioning and clean-up, risks and hazards fall to the point that regulation under the nuclear site licensing regime and application of the nuclear third party liability regime are no longer warranted.

¹ The regulators are the Office for Nuclear Regulation (ONR), the environment agencies (the Environment Agency in England, Natural Resources Wales in Wales, and the Scottish Environment Protection Agency in Scotland) and the Health and Safety Executive. Northern Ireland has no nuclear sites but the environmental regulator is the Northern Ireland Environment Agency (NIEA).

Recognising this, the Steering Committee for Nuclear Energy of the Organisation for Economic Co-operation and Development (OECD) has recently decided that sites in the process of being decommissioned may be excluded from the international nuclear liability regime, when the main nuclear hazards have been removed and the risks to the public are small.

Nuclear sites in the final stages of decommissioning and clean-up are subject to regulation by ONR and the environment agencies. The environment agencies are responsible for regulating radioactive waste disposal and other aspects of environmental protection. The regulatory regimes applied by ONR and the environment agencies differ in their approach to site clean-up and re-use.

Case for change

In summary, the main reasons for change are:

- nuclear third party liability currently continues beyond the point at which it is no longer required. The UK has not yet implemented the decisions of the OECD Steering Committee for Nuclear Energy concerning the exclusion of certain sites from the nuclear liability regime;
- site operators wishing to exit the NIA65 licensing regime are required to clean-up the site in a way that does not allow them to balance the overall safety and environmental risks and this may result in unnecessary costs; and
- disposal facilities for radioactive waste located on nuclear licensed sites remain subject to nuclear licensing. Such sites are also regulated by the environment agencies. We consider this dual regulation unnecessary after nuclear safety matters have been resolved.

Principles for the development of consultation proposals

In formulating the proposals, we have adhered to the following principles:

- there must be no relaxation in the standards for public protection - the proposals align with UK radiological protection law, international standards and Public Health England guidance;
- the proposals must respect the statutory principles of good regulation;
- sites must remain under appropriate regulation; and
- a rigorous procedure must be used for assessing the wider benefits and risks of different clean-up options, so that the best overall solution can be found for each site and its surroundings.

Consultation proposals in summary:

1. We propose to change the NIA65 to allow licensees to exit the licensing regime once the site has reached internationally agreed standards and nuclear safety and security matters have been fully resolved.

2. After the licence has been ended, the site would be regulated by the relevant environment agency and the Health and Safety Executive (HSE), in the same way that non-nuclear industrial sites undergoing clean-up for radioactive or other contamination are regulated. Proposals for further clean-up would be assessed by the relevant environment agency under the Radioactive Substances Regulations. This process would enable the site operator to work with the community to establish the most appropriate end state for the site and would result in improved waste management and other environmental benefits.
3. We propose to allow ONR to exclude certain disposal facilities for radioactive wastes from the nuclear licensed site, if it is content that nuclear safety and security matters have been fully resolved. The facilities would be regulated by the relevant environment agency and HSE and the relevant environment agency would be responsible for deciding when nuclear third party liability should end.
4. To allow these changes to take place, we propose to implement two recent decisions by the OECD Steering Committee for Nuclear Energy concerning the exclusion of certain sites from the nuclear third party regime.
5. We propose to tighten the licence surrender process to require a licensee to apply to ONR to surrender the licence. We also propose to strengthen requirements for ONR to consult with HSE when the licence is surrendered or varied.

It is important to note that, after any decisions to end special liability requirements under the international nuclear third party liability regime, legal liability regimes for third party damage or injury would remain available under UK law.

Next steps

We will review the responses to the proposals and publish the Government's response to the consultation.

If we decide to proceed with the proposals, further work will be required. The next steps would include developing draft legislation to amend the NIA65 and working with other Government Departments and the Devolved Administrations to determine whether changes would be required to secondary legislation. Any amendments to legislation would depend on securing Parliamentary time.

Catalogue of consultation questions

Consultation Questions	
1.	Do you agree with the proposal to exclude nuclear sites in the process of decommissioning and clean-up from the continuing application of the third party liability regime, once conditions specified in the Paris Convention Decommissioning Exclusion are met? If not, why not?
2.	Do you agree that the licensee of a nuclear site should be required to apply to the Office for Nuclear Regulation (ONR) to surrender the licence and should lose the ability to surrender the licence unconditionally as at present?
3.	Do you agree that ONR should be able to exclude waste disposal facilities from the nuclear site licence if satisfied that nuclear safety and security matters for these facilities are fully resolved? If not, why not?
4.	Do you have any further evidence that we should take into account in our impact assessment?
5.	Do you have any other comments on these proposals?

1. Context for the consultation

This section describes the scope of the consultation, the status of nuclear decommissioning in the UK and the principle of optimisation of site remediation.

Scope of the consultation

- 1.1. The consultation is seeking views on the regulation of nuclear sites in the final stages of decommissioning and clean-up.
- 1.2. This consultation concerns **only** the final stages of decommissioning and clean-up of nuclear sites and the associated radioactive waste disposal. The decommissioning and clean-up of non-nuclear sites² is out of scope.
- 1.3. For the avoidance of doubt this consultation is not seeking views on the environment agencies' guidance on release of sites from radioactive substances regulation; which was consulted on in February 2016.

Consultation to date

- 1.4. This consultation builds on previous work by BEIS³, the NDA and the regulators to investigate options for improving the final stages of decommissioning and clean up.
- 1.5. In April 2016, following a formal consultation, the NDA published its strategy [Ref: A.2.1], noting the intention to work with Government and the regulators to explore alternative regulatory regimes to enable beneficial re-use of former nuclear sites earlier, while ensuring that the level of protection afforded to the public, workers and the environment remains the same or is improved.
- 1.6. In November 2016, we published a discussion paper on the regulation of nuclear sites in the final stages of decommissioning and clean-up [Ref: A.2.2]. Twenty-five organisations and individuals responded to this discussion paper⁴. Most respondents agreed that the proposals set out in the paper would enable a more flexible approach to nuclear site clean-up that takes account of a range of possible site end states and opportunities to optimise waste management. Several respondents emphasised the need for transparency with local communities, close engagement with planners and

² Many 'non-nuclear' industrial sectors, such as hospitals and research establishments use or manage radioactive substances. Other non-nuclear sectors, such as the oil and gas production sector, have to manage naturally occurring radioactive material and waste as a consequence of their operations. These non-nuclear sectors may have radioactive contamination which needs to be remediated when the site is vacated or the plant is decommissioned. These sites are out of the scope of this consultation.

³ And its predecessor, the Department of Energy and Climate Change, DECC

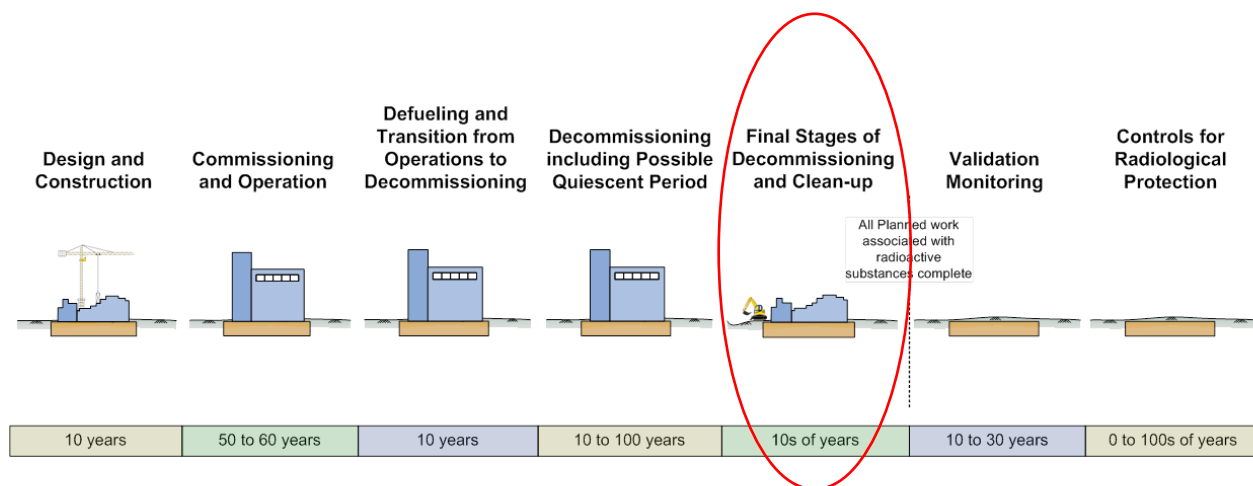
⁴ Organisations included local stakeholder groups (5), local authorities (4), NGOs (2), representatives of the nuclear industry (8), individual nuclear and environmental experts (4) and one company from the health sector

appropriate record keeping. Some respondents raised questions about the lifetime of in-situ waste disposals and liability if damage is caused after the cessation of the nuclear third party liability regime. They also requested a clear description of the regulatory changes that would be required to enact the proposals. We have addressed these issues in this consultation.

Status of nuclear decommissioning in the UK

- 1.7. There are currently 36 nuclear sites located across England, Wales and Scotland, each comprising one or more nuclear installations. Some of these sites are being decommissioned.
- 1.8. The Nuclear Decommissioning Authority (NDA) is responsible for the decommissioning and clean-up of 17 of these sites. Other sites to be decommissioned in the future include the operational nuclear power stations owned by EDF Energy, and other nuclear sites in the nuclear fuel cycle, reprocessing, waste management, pharmaceutical and research sectors.
- 1.9. A new nuclear power station is currently under construction at Hinkley Point C, and industry has set out plans to construct other new nuclear facilities in England and Wales which will need to be decommissioned at some future date.
- 1.10. Most of the existing NDA nuclear facilities are currently undergoing various stages of decommissioning which follow the end of the operational phase. Decommissioning and clean-up is a staged process (see Figure 1), the final stages of which typically involve dismantling and demolition of redundant buildings and land remediation, such that a suitable site end state is achieved⁵.

Figure 1: Illustration of the lifetime of a nuclear power station



⁵ This can entail returning the site to its original condition, by removing contamination, or where removal is not practical, treating and immobilising contamination, remedying the harm that the contamination may have caused and mitigating the effects of any harm.

- 1.11. During the final stages of decommissioning and clean-up significant volumes of waste can be generated. Most of the waste volume is conventional waste, in the form of rubble, concrete, brick, soil, drains and pipelines, as buildings and structures are demolished and the site cleaned up. However, a small percentage of this waste is radioactive; mostly Low Level Waste (LLW) and Very Low Level Waste (VLLW)⁶. Although the proportion of waste that is radioactive is small, the amounts are nevertheless significant, typically tens of thousands of cubic metres on a Magnox site. The volume of waste generated depends heavily on the agreed level of clean-up. Figure 2 shows an example of a site in the final stages of decommissioning and clean-up.

Figure 2: An example of the final stages of decommissioning and clean-up



- 1.12. UK Government policy [Ref: A.2.3], relevant to all existing and new UK nuclear facilities, states that the objective of decommissioning is to remove the hazard the facility poses progressively, giving due regard to security considerations, the safety of workers and the general public and protecting the environment, while in the longer term reducing the number of sites and area of land which remain under regulatory control. Amongst other things, the policy notes that decommissioning should be carried out as soon as is reasonably practicable, in a transparent manner, taking account of the views of stakeholders and any proposed future use of the site. UK Government policy also recognises the importance of optimisation of waste management.

Optimising the final stages of decommissioning and clean-up – finding the best overall solution

- 1.13. Optimisation is an important principle underpinning radiation protection legislation across the regulatory regimes, and is embedded in UK government policy and in national and international safety standards for protection against radiation⁷.
- 1.14. In the context of nuclear decommissioning and clean-up, optimisation is the process of bringing the site to a condition such that radiation exposures are as low as

⁶ Definitions are given in the glossary.

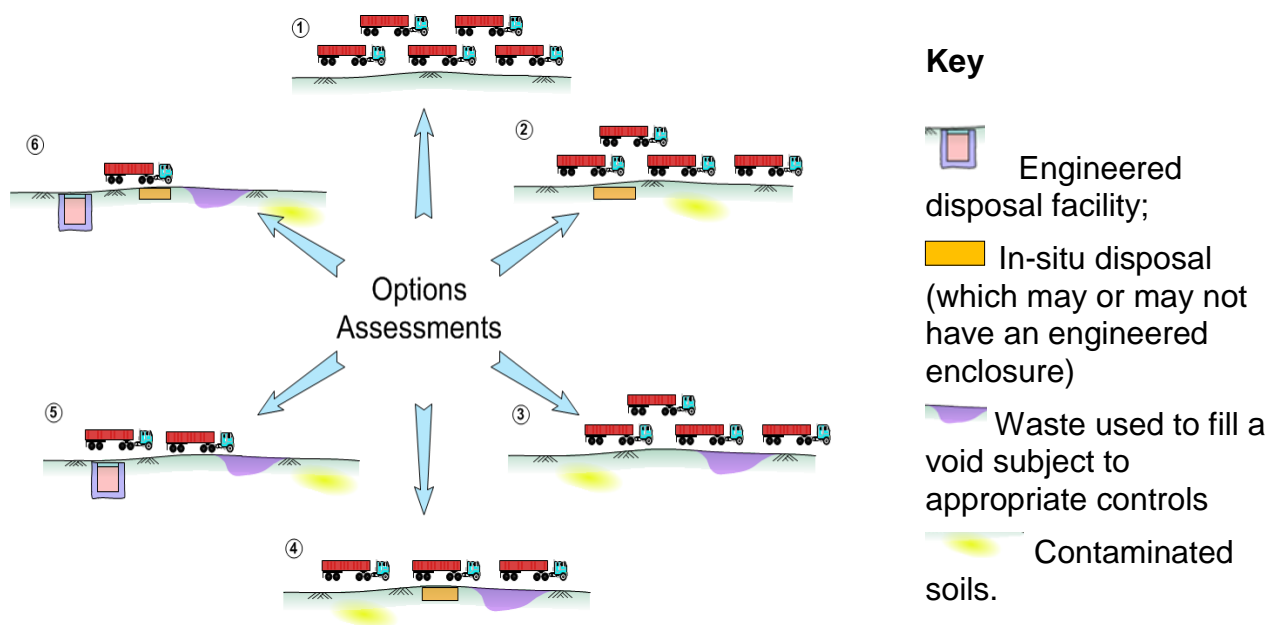
⁷ For example, the EU Basic Safety Standards Directive, to which the UK Government is committed.

reasonably achievable. The process requires consideration of relevant safety, environmental and other standards, while taking into account wider economic and societal factors. In other words, optimisation requires that the benefits and detriments of clean-up work are balanced in an attempt to deliver the greatest net benefit. This is supported by a process of stakeholder engagement.

1.15. Applying optimisation to nuclear site decommissioning and clean-up will ensure that radioactive waste and contamination are managed in a way that is safe, but may not necessarily lead to all radioactivity being removed from the site. Figure 3 demonstrates how the most appropriate solution may vary from site to site.

1.16. Figure 3 gives six stylised examples of radioactive waste management options for a hypothetical site. In some situations, it may be appropriate to remove all waste and residual contamination from the site for disposal or management elsewhere (example 1). In some situations, engineered disposal facilities may be required (examples 5 and 6). In other situations, the optimum solution may be to leave some waste and / or residual contamination in situ or use it to refill voids on site (examples 2 to 6). The site environmental safety case must demonstrate that the approach selected is safe and that it represents the best overall solution for the site, the wider environment and the public. Thus the solution that would be correct for one site may not be for another site in another location with different local priorities and concerns.

Figure 3: Examples of waste management options⁸



⁸ This figure is replicated from draft guidance compiled by the Environment Agency, Scottish Environment Protection Agency and Natural Resources Wales on the Requirements for Release of Nuclear Sites from Radioactive Substances Regulation.

2. Current regulatory framework for the final stages of nuclear decommissioning and clean-up

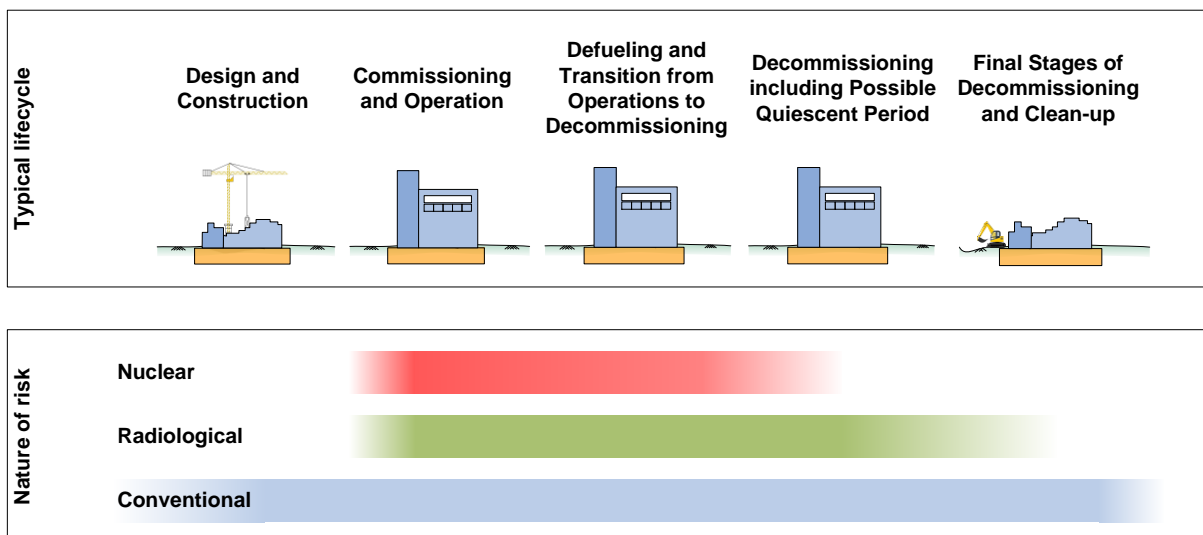
This section describes the regulatory framework that applies to the final stages of nuclear decommissioning in the UK

Regulating nuclear decommissioning and clean-up

2.1 Appropriate regulation is required to manage the risks on nuclear sites. During the process of decommissioning, nuclear hazards are removed, leaving hazards of a conventional nature (as found on any construction site) and radiological hazards associated with any residual radioactivity. As clean-up progresses, the levels of risk associated with these hazards diminishes, as shown in Figure 4.

2.2 The regulation of nuclear sites is carried out under several different regulatory regimes; namely nuclear safety and security, radiological safety, conventional health and safety, environmental protection, and land use controls. Under the current framework, all these regulatory regimes apply throughout all stages of decommissioning and clean up.

Figure 4: Evolution of the nature of risk on nuclear sites



2.3 The main regulatory regimes for nuclear licensed sites are summarised below.

Nuclear safety and nuclear third party liability

- 2.4 The NIA65 provides the legal framework for the UK's nuclear site licensing and nuclear third party liability regimes.
- 2.5 The UK nuclear site licensing regime specifies that no person shall use a site to install or operate a nuclear installation without a nuclear site licence. The licence contains specific conditions with which the licensee has to comply. The requirement for a licence is also set out in international and European law [Ref: A.2.4 and A.2.5].
- 2.6 The nuclear third party liability regime places strict liability upon a licensee as regards injury to persons or damage to property arising from a nuclear occurrence. A licensee must ensure that sufficient funds are available, by insurance or other approved means, to meet third party claims within the financial limits prescribed in the NIA65. The period of time during which this third party liability regime is required is referred to in the NIA65 as the 'period of responsibility'. The UK's nuclear third party liability regime implements the Paris Convention on nuclear third party liability, one of the cornerstones of international nuclear liability law [Ref: A.2.6, A.2.7, A.2.8]⁹.
- 2.7 The Office for Nuclear Regulation (ONR) is the specialist nuclear safety and security regulator for nuclear sites in Great Britain. ONR regulates the nuclear site primarily through the nuclear site licence granted under the NIA65. ONR also regulates the transport of radioactive materials within Great Britain by road and rail¹⁰.

Conventional health and safety

- 2.8 Conventional health and safety on nuclear sites is regulated by ONR. On non-nuclear sites, such as hospitals, certain industrial sites and universities, the health and safety of work is regulated by the appropriate regulatory authority, which is usually the Health and Safety Executive (HSE).

Protection from ionising radiation in the workplace

- 2.9 Work involving ionising radiation is regulated by ONR on nuclear sites and by HSE on non-nuclear sites.

Environmental protection

- 2.10 The environment agencies are responsible for regulating disposals and discharges¹¹ of wastes, both radioactive and non-radioactive, under the relevant environmental protection legislation. These responsibilities include the protection of the public and the environment from the effects of ionising radiation that may result from the disposal of radioactive waste.
- 2.11 Environmental protection from radioactive substances is a devolved matter in the UK and is regulated through the Environmental Permitting (England and Wales) Regulations 2016 (EPR16) in England and Wales, and through the Radioactive Substances Act 1993 (RSA93) in Scotland and Northern Ireland. Collectively, these

⁹ In this document, the term "Paris Convention" is used to cover both the Paris Convention and the Brussels Supplementary Convention, see references [A.2.6,A.2.7,A.2.8]

¹⁰ ONR also advises on the safety of transport of radioactive material by air and sea, and regulates the security of civil nuclear materials in the UK.

¹¹ See Annex 1 for definitions.

regulations are referred to as the “Radioactive Substances Regulations”, or RSR, in this consultation.

- 2.12 The relevant environment regulator is the Environment Agency (EA) in England, Natural Resources Wales (NRW) in Wales, the Scottish Environment Protection Agency (SEPA) in Scotland, and the Northern Ireland Environment Agency (NIEA) in Northern Ireland¹².
- 2.13 The nuclear site operator must submit a site-wide environmental safety case and waste management plan to the relevant environment agency at intervals throughout the lifetime of the site. In the final stages of decommissioning, this environmental safety case should include a description of the clean-up operations that need to be taken such that the site can be eventually be released from RSR.
- 2.14 The site-wide environmental safety case and waste management plan must take account of the principle of optimisation, as described in sections 1.13-1.16.
- 2.15 Throughout the period of the RSR permit, the operator is obliged to manage and retain adequate records of all work involving radioactive substances and also, where necessary, to provide adequate records of the controls applied along with the required validation monitoring data. These records are publicly available.
- 2.16 Finally, the presence of a RSR permit does not, in itself, prevent the site from being used for other purposes (such as recreation or redevelopment). The relevant environment agency is normally consulted on any planning application submitted during the period of a RSR permit on a nuclear site.

Land use planning

- 2.17 Land use planning controls apply at all stages of a nuclear site’s life cycle, from pre-construction to decommissioning through to the site’s next use. Issues of development control on nuclear sites are a matter for the relevant planning authority acting under the planning legislation¹³.

Current procedures for ending regulation of a nuclear site in the process of being decommissioned

- 2.18 ONR and the environment agencies work closely with one another to ensure the effective co-ordination of their respective regulatory activities on nuclear sites throughout the full lifecycle.
- 2.19 The cessation of the site operator’s responsibilities for decommissioning and clean-up occurs only when:
- the nuclear licence is revoked **and** ONR is satisfied that the licensee’s period of responsibility under the NIA65 is ended; **and**,

¹² There are no nuclear sites in Northern Ireland.

¹³ Primarily the Town and Country Planning Act 1990 in England and Wales (supplemented by other legislation including Planning (Wales) Act 2015) and the Town and Country Planning (Scotland) Act 1997.

- the relevant environment agency decides the environmental permit for the management of any radioactive substances or wastes can be surrendered.¹⁴

Current requirements for ending the period of responsibility for nuclear third party liability

2.20 The NIA65 specifies that the period of responsibility for nuclear third party liability continues until such time as ONR notifies the licensee in writing that in its opinion there has ceased to be any danger from ionising radiations from anything on the site; this is known as the “no danger” criterion¹⁵. After that point the nuclear third party liability regime no longer applies to that site.

2.21 “No danger” is interpreted in regulatory guidance [Ref: A.2.9] and is achieved once the nuclear site has been cleaned up to the extent that it is suitable for any reasonably foreseeable future use. This is discussed further in section 3.

2.22 The ending of the period of responsibility does not mean that the owner or occupier of the site has no liabilities or responsibilities to third parties. If injury or damage are caused by an incident which occurs during the period of responsibility, claims may still be made up to 30 years after the incident¹⁶. When the nuclear liability regime ceases to apply, third party liability under ordinary law will still be available.

Current arrangements for ending the nuclear site licence

2.23 The revocation or surrender of the licence does not end the licensee's period of responsibility under the NIA65 with regard to the nuclear third party liability regime. This is a separate decision process.

2.24 Currently, the NIA65 gives ONR and the licensee the rights, respectively, to revoke or to surrender the nuclear site licence at any time. If the licence is surrendered before the the period of responsibility is ended, ONR has the power to regulate nuclear safety during the remainder of the period of responsibility by giving legally-enforceable directions to the licensee.

2.25 The NIA65 also allows ONR to vary the licence by excluding from it any part of the site which no longer requires a licence **and** which has met the “no danger” criterion. Thus, decommissioning and clean-up of a site can occur zone by zone in phases, over a number of years.

2.26 It is important to note that, in practice, there can be difficulties in re-using a nuclear licensed site for any other purpose while the licence remains in place¹⁷. Normally, under the current arrangements, a site is unlikely to be available for significant re-use until it meets the “no danger” criterion.

Current arrangements for ending regulation by the relevant environment agency

2.27 All nuclear licensed sites also have permits under RSR to dispose of radioactive waste. Regulation by the relevant environment agency can only end once the

¹⁴ See the glossary for the definition of the environmental permit used in this consultation.

¹⁵ Procedures are different if a replacement licence is being issued, or if the site becomes a Crown site for which a licence is not required.

¹⁶ Subject to the provisions of the NIA65.

¹⁷ The licensee must remain in control of the site, and also remains solely responsible for compliance with site licence conditions. Therefore the licensee needs to ensure that any relevant requirements are also met by any tenants or other occupiers or users of the site. The additional security and insurance requirements associated with activities carried out on a nuclear site are also a deterrent to re-use while the licence remains in place.

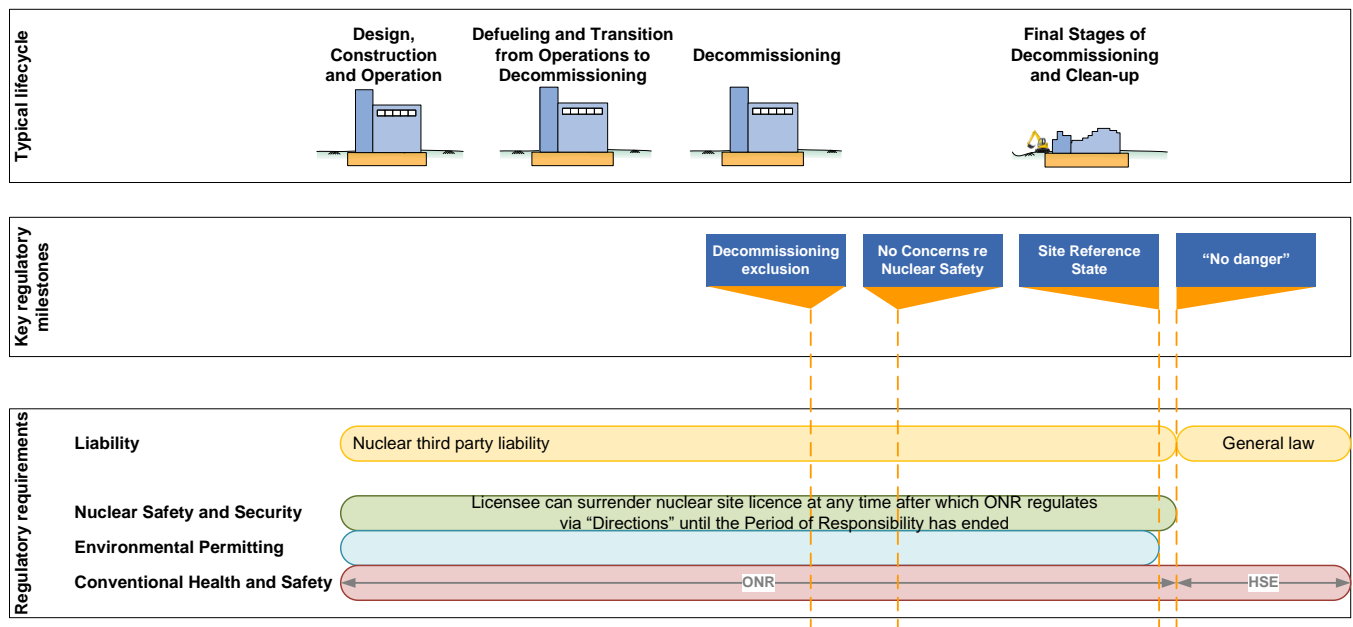
environmental regulator is satisfied that the site has reached the “Site Reference” state, described in the Guidance on Requirements for Release from the Radioactive Substances Regulations (GRR) [Ref: A.2.10] which applies to the decommissioning and clean-up of nuclear sites.

2.28 Finally, it is important to note that while a site is under an RSR permit, it may be used for other purposes, such as recreational use or redevelopment subject to the conditions of the permit and to planning permission (if appropriate).

Summary

2.29 Figure 5 summarises the regulatory regime and shows the key stages that must be reached before a site operator can relinquish its responsibilities under the current framework.

Figure 5: Illustration of the current key milestones relating to regulation at nuclear sites



Current procedures for regulation of radioactive waste disposal facilities and pending changes

2.30 Disposal facilities¹⁸ containing radioactive wastes are regulated for environmental protection purposes by the relevant environment agency under the Radioactive Substances Regulations, regardless of whether the disposal facility is located on a nuclear site or not. The safety of disposal activities on nuclear licensed sites is regulated by ONR, and on non-nuclear sites by the relevant health and safety authority, usually HSE.

2.31 Installing or operating such a disposal facility does not in itself require a nuclear site licence¹⁹, although if the facility is situated on a nuclear licensed site it is regulated by ONR under the licence.

¹⁸ See the glossary for definitions.

¹⁹ Note, however, that the Government's White Paper, White Paper 'Implementing Geological Disposal' sets out proposals to require a nuclear licence for geological disposal facilities (GDFs) for higher activity waste.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332890/GDF_White_Paper_FINAL.pdf

2.32A 2016 Order [Ref: A.2.11] amending the NIA65 is expected to come into force in summer 2018. This order refers to disposal facilities for radioactive waste from nuclear licensed sites as “relevant disposal sites” provided that they are located outside the nuclear site boundary.

2.33 When the 2016 Order comes into force, these “relevant disposal sites” will be included within the nuclear third party liability regime, in line with international requirements [Refs: A.2.6, A.2.7, A.2.8]. The environment agencies will determine when the period of responsibility can end for these sites.

2.34 However, the 2016 Order does not cover disposal facilities located on a nuclear site. For these facilities, the decision to end the period of responsibility rests with ONR.

3. Case for change

This section describes the change for amending the framework for the regulation of nuclear sites in the final stages of decommissioning

Introduction

3.1 There is an opportunity to modernise the legislative framework to enable more streamlined regulation during the final stages of decommissioning and clean-up.

3.2 The case for change can be split into four elements:

- bringing the UK in line with internationally agreed standards for ending the period of responsibility for nuclear third party liability;
- ensuring that the site is regulated by the most appropriate regulators in each stage of the decommissioning process;
- ensuring sustainable clean-up of sites and allowing earlier re-use;
- removing the barriers to construction of disposal facilities on nuclear sites.

Bringing the UK in line with internationally agreed standards for ending the period of responsibility for nuclear third party liability

3.3 Currently, in the UK, a nuclear site remains subject to the nuclear third party liability regime until ONR notifies the licensee that the period of responsibility has ended because the site has reached the “no danger” criterion²⁰. At the time that the NIA65 was drafted, detailed consideration had not been given to decommissioning and the practicalities of ending the period of responsibility for nuclear licensed sites using the ‘no danger’ requirement. There was no international guidance and no suitable alternative regulatory framework in place at that time to regulate any residual risks.

3.4 In 2014, the OECD Steering Committee for Nuclear Energy decided to allow nuclear plants to be excluded from the nuclear third party liability regime when certain conditions, known as the “Paris Convention Decommissioning Exclusion Criteria” [Ref: A.2.12] are met²¹. In summary, these conditions require that:

- the operations of the installation in the process of being decommissioned must have permanently ceased; and

²⁰ The period of responsibility will end once the ONR has given notice in writing to the licensee that in its opinion “there has ceased to be any danger from ionising radiations from anything on the site.”

²¹ This decision supersedes a decision on the same matter taken by the OECD Steering Committee on Nuclear Energy in 1990.

- any nuclear fuel, radioactive material in process, radioactive waste and radionuclide inventory must have been removed or have decayed to specified levels or below; and
 - the annual effective dose to an **offsite member of the public, under any circumstances including accidents**, must not exceed 1 millisievert (mSv)²²; and
 - the installation must remain under the control of the relevant national authorities and provisions for containment and control of the remaining radioactivity must also be in place.
- 3.5 The UK is a member of the Nuclear Energy Agency and has a representative on the OECD Steering Committee for Nuclear Energy. Other countries who are also contracting parties to the Paris Convention are also considering applying the exclusion for sites in the process of decommissioning; for example the German Government is consulting on a proposal to adopt the exclusion into German law.
- 3.6 There is a case, therefore, for amending the UK's regulatory framework to allow nuclear sites to be excluded from the nuclear third party liability regime, provided that ONR is satisfied that hazards and risks have fallen below the relevant criteria specified by these recommendations.

Ensuring that the site is regulated by the most appropriate regulator in each phase of decommissioning

- 3.7 As explained in chapter 2, safety and security on nuclear sites is regulated by ONR under the NIA65 while environmental protection is regulated by the environment agencies under the Radioactive Substances Regulations and other environmental legislation.
- 3.8 In the early stages of decommissioning of a nuclear reactor, the spent fuel and higher activity wastes are removed and stored securely elsewhere, resulting in radiological hazards at the reactor installation falling by over 99%.
- 3.9 At some point in the clean-up process, the nature of the hazard associated with nuclear sites becomes broadly similar to that at non-nuclear industrial sites undergoing clean-up for radioactive contamination. Such non-nuclear sites are regulated by the relevant environment agency and HSE.
- 3.10 For nuclear sites, regulation under the NIA65 currently continues beyond the point at which nuclear risks and hazards have been resolved. We consider this unnecessary; the residual radiological risks are small and more appropriately regulated by HSE under the Ionising Radiations Regulations. Environmental regulation would continue, with the focus being on land remediation.
- 3.11 This arrangement would allow ONR to concentrate its specialist nuclear skills on sites that require this expertise.

²² One millisievert per year corresponds to the internationally agreed radiation dose limit for members of the public for artificial radiation sources apart from medical. The UK average radiation dose is 2.7 millisieverts per year, primarily from natural sources. The average radiation dose in Cornwall is 6.9 mSv.

- 3.12 It would also simplify procedures for site operators. At present, the regulatory regimes applied by ONR and the environment agencies differ in their approach to clean-up and re-use of the site. Thus site operators are currently obliged to consider two sets of regulations and standards for clean-up instead of one.
- 3.13 Finally, the NIA65 currently allows the licensee to surrender the licence at any time, after which ONR would need to regulate via “directions”. This introduces unnecessary complexity into the regulatory framework. There is a case for requiring all site operators to apply to ONR if they wish to surrender the licence so that the process requires a positive regulatory decision.

Ensuring most sustainable clean-up of sites and allowing earlier re-use

- 3.14 As discussed in section 3.3, a nuclear site currently remains subject to the nuclear third party liability regime until ONR notifies the licensee that the period of responsibility has ended because the site has reached the “no danger” criterion specified in the NIA65.
- 3.15 The “no danger” requirement was interpreted by the regulator in 2005 following legal advice and extensive public consultation [Ref: A.2.13]. In practice, meeting this interpretation of the “no danger” criterion generally means removing virtually all the lightly contaminated foundations and substructures from a site and transporting them to disposal facilities elsewhere. For a typical Magnox site, this can represent thousands of cubic metres of lightly contaminated waste.
- 3.16 The excavation and transport of this waste for disposal elsewhere result in a number of impacts on people and the environment. In particular: risks to construction and demolition workers; traffic risks due to many movements of heavy lorries taking waste away and bringing fresh material in for filling voids; and the filling up of the limited space in specialised radioactive waste disposal facilities.
- 3.17 In some cases, the risks of leaving lightly contaminated substructures and soils in place, where it is safe to do so, may be significantly lower than those of excavating, transporting and disposing of them elsewhere. The current requirement to meet the “no danger” criterion means that it is not possible to weigh up the benefits of moving the lightly contaminated material against the wider environmental, social and economic impacts.
- 3.18 We therefore consider that, for many sites, the “no danger” criterion may not be the most appropriate criterion for determining the degree of clean-up required. For such sites, the Radioactive Substances Regulations, applied by the environment agencies, provide a robust mechanism for assessing the wider impacts of different clean-up proposals and identifying the best overall solution for the site.
- 3.19 Moreover, the Radioactive Substances Regulations allow the site to be re-used while still being regulated²³. Government therefore considers that these regulations offer a more sustainable and flexible approach to clean-up work than the current “no danger” criterion.

²³ Nuclear regulation does not preclude a site being used for other purposes, but in practice, it is very difficult, as described in section 2.26.

Removing the barriers to construction of disposal facilities on nuclear sites

- 3.20 A disposal facility site on a nuclear licensed site cannot be a “relevant disposal site” as defined in section 2.32. Therefore it is the ONR that determines the period of responsibility, rather than the relevant environment agency.
- 3.21 Under the NIA65, ONR’s current criterion for ending the period of responsibility for nuclear third party liability is the “no danger” criterion, described in section 3.3. As a result, where a disposal facility is required, operators may be inclined to build these next to the nuclear licensed site (which may be on greenfield land) rather than within the existing site.
- 3.22 If there are no licensable activities taking place on or around a disposal facility located on a nuclear site and nuclear safety and security matters have been resolved, there is a case for allowing the licensee to apply to ONR for a variation in the licence to exclude such a disposal facility from the nuclear site. This would allow the environment agencies, as the specialist regulators for radioactive waste disposals to determine the ending of the period of responsibility for these disposal facilities as they will do for relevant disposal facilities located elsewhere when the 2016 Order amending the NIA65 comes into force.

Case for excluding certain Low Level Waste facilities from the requirement for nuclear third party liability

- 3.23 Low level waste facilities do not form a key part of these proposals, however, we propose to take the opportunity to implement an internationally agreed recommendation concerning nuclear third party liability for some of these facilities.
- 3.24 In 2012, the UK Government set out its intention to investigate options for excluding certain LLW disposal facilities from the requirement for nuclear third party liability [Ref:A.2.14 **Error! Reference source not found.**].
- 3.25 In 2016, the OECD Steering Committee for Nuclear Energy published criteria for exempting certain Low Level Waste Facilities from the requirement for nuclear third party liability [Ref: A.2.15]. The recommendations apply to LLW facilities which accept solid waste only.
- 3.26 These criteria include an assessment of the activity of radionuclides at the time of disposal²⁴ and demonstration that the maximum dose to a member of the public is less than 1 millisievert (1mSv) under all reasonably foreseeable circumstances including unlikely events such as accidents.
- 3.27 There is therefore a case for amending the UK’s regulatory framework to allow certain Low Level Waste facilities to be excluded from the requirement for nuclear third party liability, when they meet these criteria.

²⁴ The assessment is based on the levels of the radionuclides at the time of disposal, in other words, it does not take into account any reduction in radioactivity levels over time.

4. Proposed changes to the regulatory framework

This section details the proposed changes to the framework for the regulation of nuclear sites in the final stages of decommissioning and outlines the expected benefits

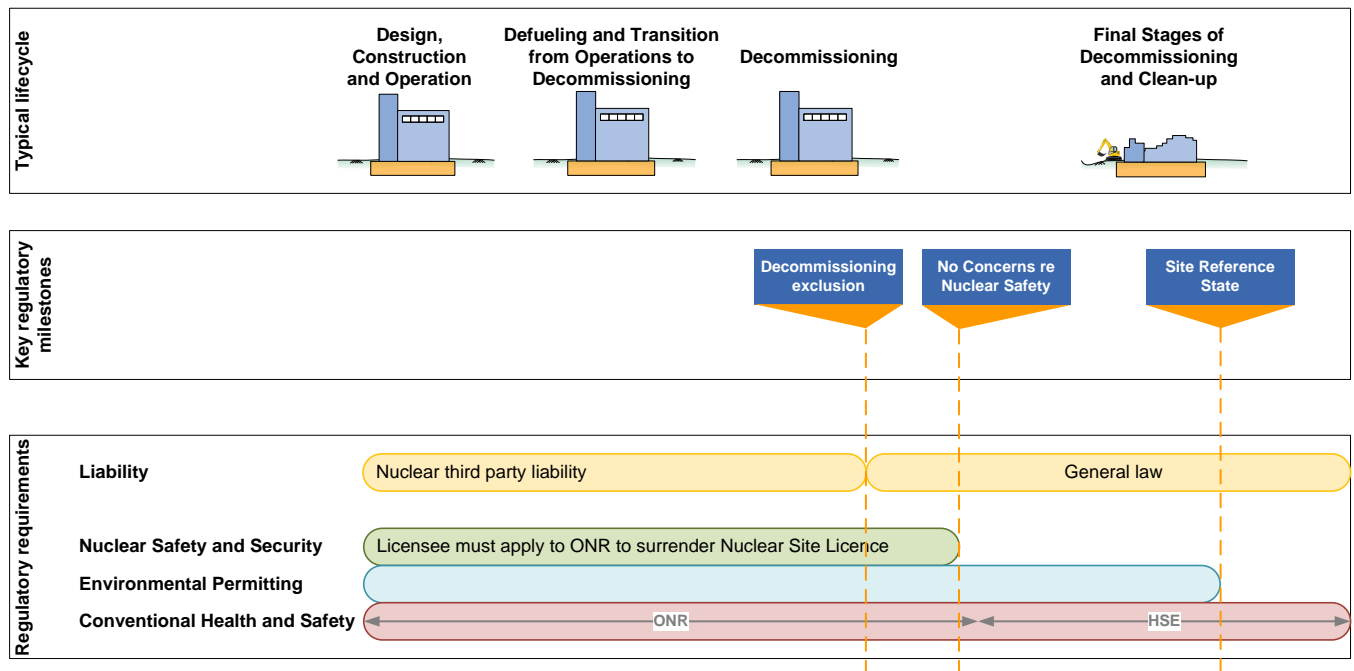
Proposed changes

4.1 Government has worked with the Steering Group to formulate proposals to improve the regulatory framework for the final stages of decommissioning and clean-up. In doing so, we have adhered to the following principles:

- there must be no relaxation in the standards for public protection - the proposals align with UK radiological protection law, international standards and Public Health England guidance;
- the proposals must align with the statutory principles of good regulation [Ref: A.2.16], in particular, the requirement to be proportionate;
- sites must remain under appropriate regulation; and
- a rigorous procedure must be used for assessing the wider benefits and risks of different clean-up options, so that the best overall solution can be found for each site and its surroundings.

4.2 This consultation proposes that the regulatory framework be amended such that ONR would be able to relinquish regulation of a site once content that the risks from the site have fallen below internationally agreed criteria and that there are no other nuclear safety or security concerns. Such a site would, in effect, no longer be a 'nuclear' site. Figure 6 shows the proposed regulatory framework.

Figure 6: Proposed framework for the regulation of nuclear sites



4.3 Under the proposed framework:

- The nuclear third party liability regime would cease to apply when ONR was satisfied that the site had met the Paris Convention Decommissioning Exclusion criteria. The ending of the period of responsibility would not mean that the owner or occupier of the site has no liabilities or responsibilities to third parties. When the nuclear liability regime ceases to apply, third party liability (under ordinary law) would then apply to the site, providing an alternative but nevertheless still robust legal regime for third party damage or injury.
- **Separately and potentially at a later date, the site operator would have to apply to ONR to surrender the site licence.** ONR would be able to accept the surrender of the licence once content that the period of responsibility for nuclear third party liability had ended **and** that nuclear safety and security were no longer a concern. ONR would consult with HSE and the relevant environment agency before taking this decision.
- Once the site licence has been revoked, the health and safety of work activities on the site would be regulated by HSE.
- Any further site remediation, and waste management and disposal, would continue to be regulated by the relevant environment agency, until the site operator could demonstrate to the satisfaction of the relevant environment agency that the RSR permit could be surrendered (indicated as “Site Reference State” in Figure 6).
- The site operator could apply to ONR to exclude certain disposal facilities from the nuclear licensed site. ONR would consult with HSE and the relevant environment agency before taking a decision and would accept the application if satisfied that nuclear safety

and security matters had been resolved. The relevant environment agency would determine the period of responsibility for these facilities.

- Low level waste disposal facilities which meet stringent internationally agreed requirements would be excluded from the requirement for nuclear third party liability.

Expected benefits of the proposals

4.4 The final stages of nuclear decommissioning and clean-up are dominated by environmental remediation. These proposals would:

- allow ONR to concentrate their specialist nuclear safety skills on sites which require this expertise;
- ensure that the site is regulated by the most appropriate regulators in the final stages of decommissioning and clean-up. These are HSE for worker safety and the environment agencies for environmental protection and radioactive waste disposal. Site operators would therefore be working to a single set of environmental standards and regulations (the Radioactive Substances Regulations), rather than being required to consider two sets as they do at present.
- enable the operators to optimise the end states, on a site by site basis, in consultation with local stakeholders and under regulation by the relevant environment agency;
- remove the current disincentives to construct disposal facilities on nuclear sites, rather than off-site, for example, on greenfield land. This would constitute better use of land and would reduce transport costs and risks. This is in line with the proximity principle, described in [Ref: A.2.17]; and
- allow certain low level waste disposal facilities to be excluded from the nuclear third party liability regime, thereby saving costs.

4.5 At sites for which the optimum end state is different to the currently proposed end state, the proposals would result in additional benefits, including:

- avoiding unnecessary remedial work, and allowing substructures and soils to remain in place, where it has been demonstrated that this represents the optimal solution for the site;
- a significant reduction in the generation of radioactive and conventional waste and the risks to workers and the public associated with excavation and transport of these wastes;
- a reduction in pressure on the existing disposal facilities;
- cost savings from reduced excavation and transport of waste; and potentially,
- earlier re-use of sites for recreational purposes or redevelopment.

Addressing points raised by respondents to the 2016 discussion paper

Do the proposals affect safety?

4.6 The paramount consideration in the assessment of plans for clean-up would be the safety of the public, the workers and the environment. The proposals are not seeking to make any changes to the radiological protection standards set in UK law which are in accordance with international law and recommendations, and guidance from Public Health England²⁵.

What are the rules about in-situ disposal and community engagement?

4.7 The proposals are intended to enable site operators to optimise the clean-up of their sites and associated waste management. In some cases, this might result in some residual low level radioactive contamination, in-situ disposal of buried structures or the disposal of other low-level radioactive waste on the site, if this has been demonstrated to be the optimal solution, taking into account wider environmental, economic and worker and public safety factors.

4.8 This would not mean that the site would be left in an unacceptable or hazardous state. Any proposals by a site operator to leave residual contamination, or to undertake on-site disposal of radioactive waste would need to be permitted by the relevant environment agency.

4.9 To permit the on-site disposal of radioactive waste, the relevant environment agency would need to be satisfied that the plans represent the optimum proposals for waste management, and that the short, medium and long-term safety of people and protection of the environment has been demonstrated by means of a site wide environmental safety case. Once decommissioning and clean-up of a site has been completed, including the completion of any on-site disposals of radioactive waste, the environment agencies would not accept the surrender of the permit until the operator has demonstrated that the land is in a satisfactory state and compliant with the requirements set out in their guidance²⁶ and the legislation.

4.10 The relevant environment agency would expect to see evidence that the site operator had engaged meaningfully with the local community prior to submitting its plans or requesting any RSR permit for waste disposal, and would take note of the views of the community when assessing the application.

Would the sites be designated under the radioactive contaminated land regime?

4.11 One response to the discussion paper asked about how the proposals relate to the radioactive contaminated land (RCL) regime [Ref: A.2.18]. The use of RSR regime for the management of radioactive contamination of the ground and groundwater ensures that the risks are fully assessed and managed appropriately by the operator before surrender of a permit is allowed. This regulatory regime should not be confused with the RCL regime which would not apply in this situation. Under the guidance for RSR permit

²⁵ Public Health England has a UK-wide advisory role for radiological protection.

²⁶ The environment agencies' guidance refers to the satisfactory state as the Site Reference State

surrender nuclear sites would be cleaned up to a standard higher than that which triggers the RCL regime.

What about re-use of the site?

4.12 The development or new use of the site would require planning permission and ground condition risks would be a material consideration for the planning authority. Furthermore, while an RSR permit is in place, the relevant environment agency would normally be consulted on any planning application.

What about legal liability after the site exits the nuclear third party regime?

4.13 When the nuclear liability regime ceases to apply, third party liability (under ordinary law) would apply to the site, providing an alternative but nevertheless still robust legal regime for third party damage or injury.

Consultation Questions 1-3	
1.	Do you agree with the proposal to exclude nuclear sites in the process of decommissioning and clean-up from the continuing application of the third party liability regime, once conditions specified in the Paris Convention Decommissioning Exclusion are met? If not, why not?
2.	Do you agree that the licensee of a nuclear site should be required to apply to the Office for Nuclear Regulation (ONR) to surrender the licence and should lose the ability to surrender the licence unconditionally as at present?
3.	Do you agree that ONR should be able to exclude waste disposal facilities from the nuclear site licence if satisfied that nuclear safety and security matters for these facilities are fully resolved? Please give reasons for your answer.

Impact assessment

4.14 The impact assessment, published alongside this consultation, provides a qualitative and quantitative analysis of the costs and benefits of the proposals compared to a “no change” scenario.

4.15 Concrete examples of how individual sites might be affected by the proposed changes in regulation are presented in Annex 3. These case studies demonstrate that adoption of the proposals could have real and tangible benefits including avoiding unnecessary generation of waste, reducing the total transport miles for radioactive waste moved from site, conventional safety risks and doses to workers and costs.

Consultation Question 4

- | | |
|----|---|
| 4. | Do you have further evidence that we should take into account in our impact assessment? |
|----|---|

5. Implementing the proposed changes

This section describes how the proposals could be implemented.

Introduction

5.1 This section sets out how the proposed changes to the regulatory framework could be implemented. It would entail a number of amendments to the NIA65 and the Radioactive Substances Regulations as well as the updating of regulatory guidance. This consultation concerns the amendments to the NIA65 only; if required, amendments to regulatory guidance and the Radioactive Substances Regulations will be consulted on separately as appropriate.

Amendments to the NIA65

5.2 There are five main elements to the proposed changes in the NIA65:

- **Amend the NIA65 so that the period of responsibility for nuclear third party liability can be ended by a new route that uses internationally agreed standards.** This new route would allow nuclear licensed sites in the process of being decommissioned to be excluded from the nuclear third party liability regime if the nuclear site meets the Decommissioning Exclusion set out by the OECD Steering Committee for Nuclear Energy in its decision of 30 October 2014. We refer to this new route as the Decommissioning Exclusion route and **it would be an option** that could apply instead of the current approach for ending the licensee's period of responsibility based on the existing interpretation of the "no danger" criterion. The current routes for ending the period of responsibility would remain in place. The decision to apply to end the period of responsibility would rest with the licensee, who would not be under any requirement to make an application at any particular time. Further details are included in Annex 4.
- **Introduce a new surrender mechanism in the NIA65 whereby the licensee must apply to ONR if it wishes to surrender its licence.** Once nuclear safety and security matters have been resolved, a licensee would be able to submit an application for licence surrender concurrently with, or subsequent to, the ending of the period of responsibility for third party nuclear liability. This proposal would remove the licensee's right to surrender its licence without prior approval from ONR. When the period of responsibility for third party nuclear liability has ended and ONR has accepted the surrender of the nuclear licence, HSE and the relevant environment agency would then become the primary regulators for the remaining stages of decommissioning and clean-up.
- **Amend the NIA65 so that the licensee can apply to ONR to exclude disposal facilities for radioactive waste from the site boundary if there are no licensable activities being carried out on that part of the site.** The relevant environment agency would continue to regulate these facilities under RSR and would also be

responsible for determining the period of responsibility for these disposal facilities as it is for disposal facilities located elsewhere. Under this proposal, a licensee would be able to apply for a variation to, or the surrender of, a nuclear site licence to exclude a disposal facility from the nuclear site licensed area. ONR would not be required to apply the “no danger” criterion before accepting any such an application, but would wish to be satisfied that the need for nuclear safety regulation of the disposal facility had ceased. There is no intention to allow a licensee to remove a disposal facility from its nuclear site licence where there are licensable activities being carried out or there are unresolved nuclear safety or security issues.

- **Amend the NIA65 to require ONR to also consult with the HSE as well as the relevant environment agency** when making the decision to accept surrender of a nuclear licence or a licence variation to exclude part of the site.
- **Amend the NIA65 to adopt the 2016 decision of the OECD Steering Committee for Nuclear Energy on excluding Low Level Waste facilities from the nuclear third party regime**, if a non-legislative approach is not viable.

Updated regulatory guidance

5.3 Depending on the response to this consultation and if the NIA65 is amended, ONR will consider publication of guidance detailing:

- the new Decommissioning Exclusion route for ending the period of responsibility for nuclear third party liability;
- its decision-making processes required under the proposed new licence variation and surrender mechanisms;
- processes for handover from ONR to the relevant environment agency and HSE;

5.4 Any new ONR guidance would take into consideration international recommendations and guidance on decommissioning.

Radioactive Substances Regulation

5.5 We anticipate that some changes would need to be made to RSR as a consequence of these proposals to ensure that residual radioactivity on previously licensed sites is appropriately regulated. Any any changes that are required will be subject to supplementary consultation exercises by Government and the Devolved Administrations.

Post licensing and RSR: administrative controls and land use planning

5.6 We have liaised with the Devolved Administrations and DCLG during the development of this consultation; at present, we do not believe any change to current planning legislation is required as a consequence of the proposals.

Implications for other legislation

5.7 These proposals would not make changes to other legislation (e.g. transport of nuclear materials, security, safeguards, emergency preparedness, contaminated land and conventional health and safety). These areas will continue to be regulated in the same way as they are at present.

Alternative implementation options

5.8 The Steering Group that developed the initial proposals also considered a non-legislative route, whereby ONR would amend its guidance for ending the period of responsibility under the NIA65 to align with the Paris Convention Decommissioning Exclusion and would amend its procedures for surrender of the licence. Under this option, no changes would be made to the NIA65.

5.9 The Steering Group considered this non-legislative option in detail, but concluded that it was not viable, for the following reasons:

- first, the 2005 interpretation of the “no danger” criterion in NIA65 was taken following legal advice and extensive consultation [Ref: A.2.13].
- second, the Steering Group considered that this option would not deliver all the intended benefits. For example, the licensee would retain the right to surrender the licence unconditionally, leaving ONR to regulate via “directions” – something we propose to change.
- third, the majority of respondents to the BEIS November 2016 discussion paper were of the view that legislative change was necessary and none suggested alternative approaches.

5.10 The proposed changes are significant. We consider that legislative change is the most appropriate route as scrutiny of proposals in the Parliamentary process would allow an open and transparent debate on their merits.

Consultation Question 5

5

Do you have any other comments on these proposals?

6. Next steps

This section describes the potential next steps for implementing the proposed changes.

- 6.1 We will review the responses to the proposals and publish the Government's response to the consultation.
- 6.2 If we decide to proceed with the proposals, further work will be required. The next steps would include developing draft legislation to amend the NIA65 and working with other Government Departments and the Devolved Administrations to determine whether changes would be required to secondary legislation. Any amendments to legislation would depend on securing Parliamentary time.

Annex 1: Glossary of consultation terms

Explanation of terms frequently used in this consultation:

Term	Definition
2004 Protocol	The Protocol of 12 February 2004 amending the Paris Convention when ratified (references A.2.6-A.2.7).
2016 Order	The Nuclear Installations (Liability for Damage) Order 2016 (SI 2016/562). This Order amends the NIA65. It introduces, amongst other things, third party liability for disposal facilities which continues during the operator's period of responsibility. This Order is pending since it is enacted but will not come into force until the 2004 Protocol is ratified, which is expected to be in summer 2018.
BEIS	Department for Business, Energy & Industrial Strategy
Decommissioning Exclusion	The decision and recommendation by the OECD Steering Committee for Nuclear Energy (governing body of the OECD Nuclear Energy Agency) dated 30 October 2014 on the application of the Paris Convention to nuclear installations in the process of being decommissioned
delicensing	A term used to describe the revocation or surrender of a nuclear site licence under section 5(1) of the NIA65. 'Partial delicensing' is the term used to describe the variation of a nuclear site licence under section 3(12) of the NIA65 to exclude any part of the nuclear site. Often, the terms are used in a wider (but less accurate) sense to describe the regulatory process of ending the nuclear site licensee's period of responsibility for a site or part of a site.
disposal	The emplacement of solid radioactive waste without intent to retrieve it at a later time, or a decision not to retrieve it. Retrieval may be possible but, if retrieval is intended then the appropriate term is 'storage'. Disposal may also include buried radioactively contaminated infrastructure or structures, such as foundations or pipework, where a decision has been made to leave such infrastructure <i>in situ</i> .

Term	Definition
<p>disposal facility</p>	<p>An engineered facility (or installation) for the disposal of radioactive wastes. A disposal facility:</p> <ul style="list-style-type: none"> must have as its primary purpose waste disposal; must have a significant degree of engineering in the structure (such as concrete vaults or lined cells) and/or controls on the waste form and content (such as conditioned and packaged waste), necessary to ensure the long-term safety of the waste being disposed of; and can be a purpose-built facility or an existing facility, such as turbine halls, but re-engineered for waste disposal.
<p>disposal <i>in situ</i></p>	<p>Buried radioactively contaminated infrastructure or structures (such as foundations or pipework) where a decision has been made to leave such infrastructure or structures <i>in situ</i> and can also include emplacement of solid radioactive waste in voids (where it is not a disposal facility).</p>
<p>EA</p>	<p>Environment Agency</p>
<p>end state</p>	<p>The condition which a nuclear site or part of a site (including the land, nuclear installations, other structures and infrastructure) will reach once decommissioning and clean-up activities have ceased.</p> <p>The site-wide environmental safety case contains a description of the end state. This description includes:</p> <ul style="list-style-type: none"> an inventory of radioactive and non-radioactive substances that remain (the residual inventory); a description of when and how the site can be used; a description of any on-going controls required to protect people and the environment from any residual hazards.
<p>the environment agencies</p>	<p>A generic term used in this Consultation to refer, collectively, to the Environment Agency, Natural Resources Wales and the Scottish Environment Protection Agency. The role of the environment agencies is to make sure that the environment and human health are protected, to ensure that natural resources are used sustainably and to contribute to the Government's policy aim of</p>

Term	Definition
	sustainable economic growth.
EPR16	Environmental Permitting (England and Wales) Regulations 2016 which apply in England and Wales and replaced the Environmental Permitting (England and Wales) Regulations 2010. These regulations apply to the disposal and discharge of waste (including radioactive waste) in England and Wales, amongst other matters.
Geological disposal facility (GDF)	A geological disposal facility (GDF) is a highly-engineered facility capable of isolating radioactive waste (principally higher activity waste) within multiple protective barriers, deep underground, to ensure that no harmful quantities of radioactivity ever reach the surface environment.
former nuclear site	A site which, previously, required a nuclear site licence, but is no longer a nuclear site because regulation by the Office for Nuclear Regulation has ended. The site may continue to be regulated by the relevant environment agency, the appropriate regulatory authority for health and safety matters and subject to land use planning controls.
GRR	<p>A draft guidance document compiled by the Environment Agency, Scottish Environment Protection Agency and Natural Resources Wales on the Requirements for Release of Nuclear sites from Radioactive Substances Regulation [Ref: A.2.10]. The GRR sets out the environment agencies' requirements and expectations for cleaning up a nuclear site to the point where controls on radioactive substances (by means of a permit) are no longer needed.</p> <p>The GRR is intended principally for the operators of proposed or existing nuclear sites. It describes what the nuclear site operator needs to do before the site can be released from Radioactive Substances Regulation, in terms of the condition of the site to be achieved and the process by which the site is brought to that condition. It adopts a principles-based approach and more detailed requirements describing how the objective and principles should be met.</p>
HSE	Health and Safety Executive. In this Consultation when referring to the health and safety regulator on sites which are no longer

Term	Definition
	<p>nuclear sites, reference to the HSE shall also mean any other appropriate health and safety regulator as set out in the Health and Safety (Enforcing Authority) Regulations 1998.</p>
<p>hazard and risk</p>	<p>The terms “hazard” and “risk” are defined in “Reducing Risks, Protecting People”, HSE, December 2001.</p> <p><i>Hazard and risk are used interchangeably in everyday vocabulary. Nevertheless, it has proved useful to HSE to make a conceptual distinction between a ‘hazard’ and a ‘risk’ by describing a hazard as the potential for harm arising from an intrinsic property or disposition of something to cause detriment, and risk as the chance that someone or something that is valued will be adversely affected in a stipulated way by the hazard. HSE – as far as the health, safety and welfare of people is concerned – frequently makes use of the above conceptual distinction in its guidance by requiring that hazards be identified, the risks they give rise to are assessed and appropriate control measures introduced to address the risks. This reflects the fact that in most cases it makes sense to take account of the circumstances in which people and management systems interact with a hazard.”</i></p> <p><u>Nuclear risk</u> – Risk of harm from nuclear processes and materials, Nuclear safety mitigates harm by:</p> <ul style="list-style-type: none"> Control over the release of energy from nuclear and chemical reactions; Cooling of heat-generating radioactive materials and wastes; Containment of radioactive materials and wastes and of radiation emitted from them. <p><u>Radiological risk</u> – Risk of harm from ionising radiation. Radiological safety mitigates harm by managing exposure to radiation (e.g. shielding the source of ionising radiation, protective clothing, limiting the exposure time).</p> <p><u>Conventional risk</u> – Risk of harm from all other (industrial) hazards, e.g. working at height, trip hazards, vehicles, pressure systems, chemicals.</p>
<p>HSWA74</p>	<p>Health and Safety at Work etc. Act 1974 (as amended)</p>

Term	Definition
installation for the disposal of nuclear matter	A disposal facility is an installation for the disposal of nuclear matter as defined in the 2004 Protocol if it receives radioactive waste, other than waste containing naturally occurring radionuclides, arising from the nuclear industry.
IRR99	Ionising Radiations Regulations 1999 (as amended)
licensee or nuclear site licensee	The legal entity holding a nuclear site licence
LLW	Low Level Waste is radioactive waste having a radioactive content not exceeding four gigabecquerels per tonne (GBq/te) of alpha or 12 GBq/te of beta/gamma radioactivity. This includes metals, soil, building rubble and organic materials, which arise principally as lightly contaminated miscellaneous items. Metals are mostly in the form of redundant equipment. Organic materials are mainly in the form of paper towels, clothing and laboratory equipment that have been used in areas where radioactive materials are used. LLW is generated on nuclear sites and also on non-nuclear sites such as hospitals, research establishments and industry.
NDA	Nuclear Decommissioning Authority
NIA65	Nuclear Installations Act 1965 (as amended)
NIEA	Northern Ireland Environment Agency
NISR03	Nuclear Industries Security Regulations 2003 (as amended)
no danger or ceased to be any danger	One of the legal requirements to be demonstrated in order for ONR to be able to notify the end of the licensee's period of responsibility for a nuclear site. This legal requirement also needs to be demonstrated in order for the relevant environment agency to be able to notify the end of an operators period of responsibility for relevant disposal sites when the amendments to the NIA65 introduced by the 2016 Order come into force.
non-nuclear sites	Any site which does not have a nuclear site licence. This can include industrial sites, sites with radioactive substances (e.g. hospitals, pharmaceutical sites, research sites and universities)

Term	Definition
	and sites with radioactive waste disposals including disposal facilities.
NRW	Natural Resources Wales
nuclear site	A site which requires a nuclear site licence and includes one or a number of nuclear installations
nuclear installation	A nuclear reactor (except reactors forming a means of transport) and any other installation listed in section 1 of NIA65 or prescribed by the Nuclear Installations Regulations 1971 (as amended).
nuclear site licence	A licence granted by ONR as described under section 1 of the NIA65
OECD	Organisation for Economic Co-operation and Development
ONR	Office for Nuclear Regulation. ONR is the regulator for nuclear safety, security and for conventional health and safety on nuclear sites. ONR also regulates the transport of radioactive materials by road and rail and ensures that the UK's obligations for safeguarding nuclear material are met. ONR enforces a range of legislation including the NIA65, the Health and Safety at Work etc. Act 1974 and the Nuclear Industries Security Regulations 2003.
optimisation	This is one of the three principles of radiation protection, as defined by the International Commission for Radiological Protection ("ICRP") and implemented in UK law. Optimisation aims to ensure that the exposure of individuals and the population as a whole to ionising radiation is kept as low as reasonably achievable below the appropriate dose constraints, with economic and social factors being taken into account. In the context of the final stages of decommissioning and clean-up, optimisation is about finding the best way to bring the site to a condition such that radiation exposures are as low as reasonably achievable, taking into account safety, environmental and other standards, economic and societal factors, and the need to manage radiological risks to other living organisms.
Paris Convention	A Convention of Third Party Liability in the Field of Nuclear Energy of 29 July 1960 (as amended) (referred to as the "Paris

Term	Definition
	<p>Convention") and the Convention of 31 January 1963 Supplementary to the Paris Convention, as amended by the Additional Protocol of 28 January 1964 and by the Protocol of 16 November 1982 (referred to as the "Brussels Supplementary Convention"). References to the Paris Convention in this Consultation shall be deemed to also include reference to the Brussels Supplementary Convention.</p>
<p>period of responsibility</p>	<p>1. <u>Nuclear licensed sites</u></p> <p>The period of responsibility for nuclear third party liability for the licensee is the period commencing with the date its nuclear site licence is granted by ONR and ending on the date ONR provides written confirmation the period has ended in accordance with section 5(14) and 5(15) of the NIA65.</p> <p>2. <u>Relevant disposal sites</u></p> <p>Once the amendments to the NIA65 under the 2016 Order come into force, the period during which the operator is responsible for the relevant disposal site will be the period commencing with the date the changes to the NIA65 come into force or granting of the permit and ending on the date the relevant environment agency provides written confirmation to the disposal site operator that the period has ended in accordance with section 7B(3) of the NIA65.</p>
<p>permit</p>	<p>This term is used in this Consultation document as shorthand for either an authorisation granted by SEPA under RSA93 or an environmental permit granted by either the EA or NRW under EPR16 to control radioactive substances.</p>
<p>planning authority</p>	<p>A body which is allocated one or more of the statutory functions of a planning authority pursuant to relevant planning legislation for any area within the UK.</p>
<p>Radioactive Contaminated Land Regime</p>	<p>The elements of Part 2A of the Environmental Protection Act 1990 (as modified) which concerns land contaminated with radioactivity and its associated regulations in England, Scotland and Wales.</p>
<p>relevant environment</p>	<p>The EA is the relevant environment agency for Radioactive Substances Regulation in England. In Wales, the relevant</p>

Term	Definition
agency	environment agency is NRW and in Scotland it is the SEPA. The NIEA is not referred to in this Consultation as there are no nuclear sites in Northern Ireland.
RSA93	Radioactive Substances Act 1993 (as amended) which applies in Scotland and Northern Ireland.
RSR/Radioactive Substances Regulations	A term used in this Consultation to refer, generally, to regulation under Schedule 23 of the EPR16 and/or regulation under sections 13 and 14 of the RSA93.
RSR permit period	<p>The period between the de-licensing of a former nuclear site and the release of the site from the Radioactive Substances Regulation. During this period, controls on the use of the site are required to protect people and the environment from radiation exposure. At the end of the period, the relevant environment agency revokes the permit and the site passes into unrestricted use.</p> <p>An operator may apply for planning permission to redevelop part of the site during the RSR permit period.</p>
relevant disposal site	A disposal facility which is an installation for the disposal of nuclear matter as defined in the 2016 Order and which will be a "relevant disposal site" in section 7B of the NIA65 once the amendments to the NIA65 set out in the 2016 Order are brought into force. The 2016 Order specifies that a disposal facility located on a nuclear licensed site or a former nuclear licensed site is not a relevant disposal site.
site reference state	<p>The state at which the relevant environment agency will accept the surrender of the RSR permit and further regulation by the agency will no longer be required.</p> <p>The term "site reference state" does not apply where a current permit is being replaced by another permit of similar scope and application.</p> <p>However, where a permit is to be varied to exclude part of the site, that part of the site must be deemed by the relevant environment agency to have reached the "site reference state".</p>

Term	Definition
site in the final stages of decommissioning and clean up	A site where all licensable activities have permanently ceased, any nuclear fuel has been removed and plans are in place to safely manage all radioactive material and radioactive waste. In the case of Magnox reactors, the final stages of decommissioning and clean-up will most probably occur after the end of the interim 'quiescent state'.
SEPA	Scottish Environment Protection Agency
stakeholder	People or organisations having a particular knowledge of, interest in, or being affected by, radioactive waste. For example, waste producers and owners, waste regulators, non-Governmental organisations concerned with radioactive waste, local communities and local authorities
third party liability regime	The special third party liability regime required by the Paris Convention and implemented in the UK by the NIA65. The regime ensures compensation for victims who suffer damage as a result of a nuclear incident at a nuclear installation or during the transport of nuclear substances to and from that installation. The regime imposes no fault liability on the operator of the nuclear installation that causes damage. It channels all liability to that operator so that victims can sue a readily identifiable person. Operators are required to take out insurance or make other provision to cover their potential liability. This regime will be extended to operators of nuclear waste disposal sites when all the provisions of the 2016 Order comes into force.
VLLW	<p>Very Low Level Waste means:</p> <p>(a) in the case of low volumes of VLLW, radioactive waste which can be safely disposed of to an unspecified destination with municipal, commercial or industrial waste ("dustbin" disposal"), each 0.1m³ of waste containing less than 400 kilobecquerels (kBq) of total activity or single items containing less than 40 kBq of total activity. For wastes containing carbon-14 or hydrogen-3 (tritium):</p> <p>in each 0.1m³, the activity limit is 4,000 kBq for carbon-14 and hydrogen-3 (tritium) taken together; and</p> <p>for any single item, the activity limit is 400 kBq for carbon-14 and</p>

Term	Definition
	<p>hydrogen-3 (tritium) taken together.</p> <p>Controls on disposal of this material, after removal from the premises where the wastes arose, are not necessary; or</p> <p>(b) in the case of high volumes of VLLW, radioactive waste with maximum concentrations of four megabecquerels per tonne (MBq/te) of total activity which can be disposed of to specified landfill sites. For waste containing hydrogen-3 (tritium), the concentration limit for tritium is 40MBq/te. Controls on disposal of this material, after removal from the premises where the wastes arose, will be necessary in a manner specified by the relevant environmental regulator.</p>

Annex 2: References

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Annex 3: Case studies

The following case studies illustrate the impact of the proposals on the final stages of decommissioning and clean-up on three sites: Trawsfynydd, Winfrith and Dounreay.

A3.1 Trawsfynydd

Background

A3.1.1 Trawsfynydd was the first inland civil Magnox nuclear station, starting service in 1965 and generating 69TWh of electricity before it shut down in 1991. It is located adjacent to the Trawsfynydd Lake hydro-electric reservoir in the central region of Snowdonia National Park. The site has two reactor buildings, an Intermediate Level radioactive Waste (ILW) store, a ponds complex that was used to store and cool used nuclear fuel, various ancillary and support buildings, access roads, grassy areas and areas of hardstanding. The surrounding area is used for a mixture of agricultural, forestry and recreational purposes.



Figure 7: Trawsfynydd power station

A3.1.2 Decommissioning is underway: the nuclear fuel was removed from the two reactors in 1995 and preparations are being made for the site to enter a quiescent Care and Maintenance (C&M) phase in 2029. These include placing the ILW²⁷ into the dedicated on-site ILW store. During the period of C&M, the Trawsfynydd site will be remotely managed by a specialised team who will continuously monitor the site, and undertake planned maintenance and inspection activities.

A3.1.3 The ILW store will be emptied and demolished once a suitable UK deep geological disposal facility (GDF) is available to receive the ILW for final disposal. Under current plans, final decommissioning and site clearance work is due to be undertaken between 2078 and 2083.

A3.1.4 The next planned land use at Trawsfynydd following final site clearance has not yet been defined – options include further industrial use or use for agricultural, forestry and/or recreational purposes more typical of the surrounding area.

²⁷ ILW: intermediate level waste

Impact of implementing the proposed regulatory changes

A3.1.5 A number of large, underground structures, some of which are radioactive, are currently present at the site, including parts of the former fuel cooling ponds, various tanks/vaults and parts of the reactor bio-shields (including their foundations).

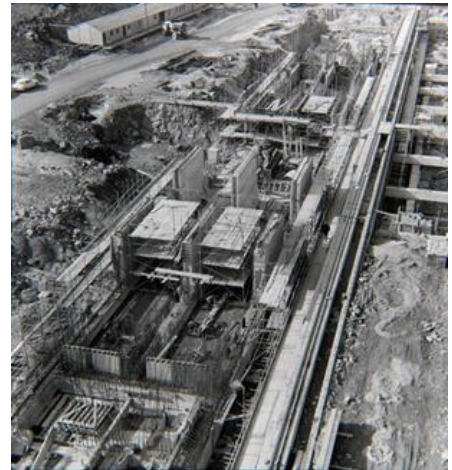


Figure 8: Trawsfynydd under construction, showing the scale of the underground structures.

A3.1.6 Under the current regulatory framework, the site operator will either:

remove most if not all of the material from the site, even if the benefits from doing so are outweighed by the disbenefits (for example, the increase in conventional traffic risks associated with transport of waste) **or**

retain the nuclear licence for many years, if it is not practical to remove all the contaminated material, despite the risks being minimal once the site reaches the OECD Paris Exclusion criteria. This entails significant costs.

A3.1.7 If the proposals are implemented, then, once the site licence is surrendered, the site operator will be able to work with local stakeholders and NRW to consider a wide range of options for dealing with these sub-surface structures, from the complete removal of all radioactive sub-surface features to the on-site disposal of all or some of the structures as radioactive waste.

A3.2 Winfrith

Background

A3.2.1 This case study illustrates the impact of the proposals on the regulation of one particular building, the Steam Generating Heavy Water Reactor (SGHWR), at the Winfrith site. SGHWR represents the largest inventory of radioactive waste on the Winfrith site.



Figure 9: Winfrith SGHWR when operating.

A3.2.2 The SGHWR is in the process of being decommissioned. It was commissioned in 1968 as a research reactor and power station, operating for nearly 23 years before being shut down in 1990. Decommissioning then began straight away. The reactor building is currently largely empty and therefore contains significant void space.

A3.2.3 The final decommissioning work on the Winfrith site will include dismantling the reactor vessels contained within the remaining reactor building. Any remaining waste that has been in long-term storage at the site will be dispatched to its final destination. Any other remaining structures at the site will then be demolished. The site will then be landscaped and restored so that heathland can develop.



Figure 10: The Winfrith end state

A3.2.4 Once all work on the site has been completed in 2023, final landscaping and site clearance work will be undertaken to ensure that the Winfrith site blends in with local heathland. An ILW store will not be built on the site, hence it can be restored to heathland and offer public access more quickly.

Impact of implementing the proposals

A3.2.5 The existing SGHWR basement contains approximately 27,300 m³ of void space that will need to be filled as part of restoring the site to achieve the final end state. Full excavation of the SGHWR would create approximately a void of 45,000m³ below ground²⁸ and an estimated 3000-5000 m³ of low level waste.

A3.2.6 Under the current regulatory arrangement, sub-structures would be removed, resulting in the generation of very significant quantities of waste to be transported offsite and the import of significant quantities of new material to fill in the voids. The impact on the local habitat and ecology at Winfrith, much of which is designated as SSSI, is another key consideration. The direct environmental impact of removing this material may outweigh the potential benefits.

A3.2.7 If the proposals are implemented, then, once the site licence is surrendered, the site operator will be able to work with local stakeholders and the Environment Agency to consider a wide range of options, including in situ disposal of some of the structures and reusing some wastes on the site to backfill voids rather than importing clean material from off-site. It is estimated that there will be more than sufficient rubble available from dismantling buildings to fill the SGHWR void; this rubble could potentially be low level or very low level radioactive waste.

²⁸ Note that not all the material removed will be classed as LLW or VLLW, hence the figures above are considerably larger than the estimated volumes of VLLW and LLW given in the impact assessment.

A3.2.8 Thus adoption of the proposals could have real and tangible benefits including avoiding unnecessary generation of waste, reducing the total transport miles for radioactive waste exported, conventional safety risks and doses to workers and costs.

A3.3 Dounreay

Background

A3.3.1 Dounreay was established in 1955 as a centre for research into fast reactor technology. Three different reactors have been built on the Dounreay site – the Dounreay Materials Test Reactor (DMTR); the Dounreay Fast Reactor (DFR), and the Prototype Fast Reactor (PFR). All of these reactors have been shut down and are being decommissioned. The site also accommodates a number of radioactive waste stores, reprocessing plants and other facilities that supported the work undertaken at Dounreay.



Figure 11: Dounreay PFR when operating.

A3.3.2 The overall decommissioning objective is to clean up the Dounreay site to leave it in a safe condition for future generations and to allow subsequent reuse of the land. Dounreay will reach its Interim End State (IES) by 2032. At this point redundant structures above and below ground will have been removed or made safe, though some facilities for the storage of ILW will remain until an off-site disposal facility is available. There is currently no defined end use of the site. Dounreay has also built a facility to receive LLW from decommissioning of the site, and this is located adjacent to the site but not within the existing nuclear site boundary.



Figure 12: Dounreay end state

Impact of implementing the proposals

A3.3.3 Under the current regulatory framework, large sub surface concrete structures such as the PFR biological shield and pond would be excavated and transferred to a disposal site, with the remaining hole filled in with imported material. The site operator has calculated that it will need around 60,000m³ of 'clean' material to fill voids on the site and a further 215,000 m³ to provide suitable landscaping.



Figure 13: Construction work at Dounreay showing underground structures

A3.3.4 Implementing the proposals would allow the Dounreay site operator to consider other options for the large sub-surface concrete structures, including potentially disposing of them in situ or using the voids for the disposal of low or very low level radioactive wastes rather than importing significant quantities of clean material from off-site. These other options could then be implemented if they were demonstrated to represent the best overall solution to the satisfaction of SEPA.

A3.3.5 Implementing the proposals would have real benefits including avoiding unnecessary generation of waste, which in turn reduces the risk to workers and the overall cost of clean-up. It would also significantly reduce the need to import material, reducing the number of miles infill is transported and the corresponding carbon dioxide emissions.

A3.3.6 Implementing the proposals could also lead to the majority of the site not requiring a nuclear site licence once the Interim End State is achieved (although the ILW and packaged fuel stores would still be licensed until the waste was removed).

Annex 4: Details of required amendments to the NIA65

This consultation proposes some amendments to the NIA65, as described below.

Ending the period of responsibility for nuclear third party liability via a new, additional route

A4.1 The period of responsibility under the NIA65 is the period of time during which the nuclear third party liability regime applies to a licensee. This special liability regime imposes strict liability on licensees for injury or damage caused by a nuclear occurrence. The regime requires licensees to have insurance, or other financial cover, in place over this period of time. The duration of the period of responsibility is currently specified in sections 5(14) & (15) of the NIA65 as the period beginning with the grant of a licence and ending with whichever of the following dates comes first:

- the date when ONR gives notice in writing that there has ceased to be any danger from ionising radiations from anything on the site;
- the date when a new nuclear site licence in respect of the site in question, or part of it, is granted; or
- the date when the site, or part of it, is used or occupied by or on behalf of the Crown and a nuclear site licence has ceased to be required.

A4.2 The OECD Steering Committee for Nuclear Energy (the “Steering Committee”) produces decisions and recommendations on the application of the Paris Convention. The Steering Committee may exclude, in view of the small risks involved, any installations, nuclear fuel or nuclear substances from the application of the Paris Convention (Article 1(b)). This includes a decision on the application of the Paris Convention to nuclear installations in the process of being decommissioned [Ref: A.2.12] (the “Decommissioning Exclusion”). The Decommissioning Exclusion sets out the criteria when a Contracting Party to the Paris Convention, such as the UK, may cease to apply the Paris Convention to a nuclear installation or nuclear site in the process of decommissioning..

A4.3 We propose changes to primary legislative powers to allow the Secretary of State to implement Steering Committee decisions via secondary legislation. The powers granted would include the power to amend primary legislation through secondary legislation where appropriate. Irrespective of the ultimate legislative route for achieving the changes, the current consultation proposes amending

section 5(15) of the NIA65 to enable a nuclear site licensee to apply to ONR to end the period of responsibility for nuclear sites in the process of being decommissioned when the licensee can satisfy ONR that the requirements of the Decommissioning Exclusion (once implemented into UK law) have been met. ONR would then be able to notify the ending of the period of responsibility when it is satisfied with the licensee's application.

- A4.4 The other routes to end the period of responsibility in section 5(15) of the NIA65 would remain unchanged. This includes section 5(15)(a) which would apply when ONR is satisfied there has ceased to be any danger from ionising radiations from anything on the site (often referred to as "no danger"). This route for ending the period of responsibility would remain in force, particularly for those nuclear sites unable to benefit from the Decommissioning Exclusion decision once it is implemented into UK law.
- A4.5 The decision to request the ending of the period of responsibility would rest with the licensee. The licensee would not be under any requirement to make this request at any particular time. One of the benefits to a licensee in ending the period of responsibility would include the removal of the requirement to maintain nuclear insurance (or such other approved provision) at the levels specified in the NIA65 once the cover period has come to an end (see section 19 of the NIA65).
- A4.6 The ending of the period of responsibility can apply to the whole or part of a nuclear site.

New licence surrender mechanism

- A4.7 The ending of the licensee's period of responsibility under the NIA65 has sometimes been referred to as "delicensing", but these are in fact two separate matters. The nuclear site licence and a licensee's period of responsibility do not necessarily run for the same period of time. The period of responsibility can currently survive the termination of the licence and vice versa. This is because the period of responsibility concerns the third party liability regime (explained in paragraph 0 above) and the nuclear site licence concerns the nuclear safety of the nuclear site.
- A4.8 A nuclear site licence can be ended at any time under section 5(1) of the NIA65 by ONR or by the licensee, respectively, revoking or surrendering the licence. Ending the nuclear site licence would not, however, end the licensee's period of responsibility for nuclear third party liability.
- A4.9 Although a nuclear site licence can currently be surrendered by the licensee at any time, historically, the vast majority of nuclear site licences have ended at the same time as the ending of the period of responsibility.
- A4.10 Currently, the licensee's right to surrender the licence is not subject to any qualifying conditions, although it would be an offence to use a site for an activity which requires a licence under section 1 of the NIA65 without holding a licence. In addition, if a licensee surrenders its nuclear site licence before its period of responsibility had ended, ONR is able to regulate the licensee using directions under sections 5(5) and (6) of the NIA65.
- A4.11 Under these proposals, the licence surrender mechanism in the NIA65 would be amended to require the licensee to apply to ONR to surrender its licence. This

would replace the licensee's current right to surrender. Licence surrender would therefore only take place when the application has been assessed and accepted by ONR. Such surrender application processes are typical for many industrial licensing regimes in the UK.

- A4.12 Requiring ONR's agreement would prevent a licensee from surrendering a licence too early, and avoid the need for ONR to regulate a licensee using directions. It would also ensure that ONR could continue to regulate a site under the terms of the site licence after the period of responsibility had ended if this was still required for nuclear safety purposes.
- A4.13 The licensee would be able to apply to ONR for the surrender of the licence at the same time as the ending of the period of responsibility or at a later time depending on site specific factors.
- A4.14 It is proposed that ONR, in consultation with HSE and the relevant environment agency, develops new guidance to support its decision making processes on whether to accept applications for surrender. It is unlikely that an application to surrender a licence would be acceptable if the period of responsibility could not be ended either at the same time or prior to surrender (save in relation to the period of responsibility for a disposal facility on a nuclear site - see paragraphs A4.17-A4.22 of this Annex below).
- A4.15 This new ONR guidance would also take into consideration international recommendations and guidance on decommissioning²⁹.
- A4.16 Under these proposals, ONR would retain its ability to revoke the licence and also to regulate using directions in section 5 of the NIA65.

Relevant disposal sites

- A4.17 Disposal facilities containing radioactive wastes are regulated by the relevant environment agency under the Radioactive Substances Regulations (EPR16 and RSA93). Health and safety regulation is provided by the appropriate health and safety regulator, typically the HSE.
- A4.18 Certain disposal facilities (facilities used for the disposal of nuclear matter) fall within the scope of the international requirements for third party liability (the Paris Convention) as amended in 2004 and expected to come into force in summer 2018.
- A4.19 In 2012, the Government set out its intention to apply all the aspects of the third party liability regime specified in the NIA65 to these facilities but without extending the nuclear licensing regime to them [Ref: A.2.14].
- A4.20 Accordingly, in 2016 an Order amending the NIA65 to make the necessary changes was put in place. These changes are set out in [Ref: A.2.11], (the 2016 Order). The 2016 Order is expected to come into force in summer 2018 [Ref: A.2.19].

²⁹ Including but not limited to the IAEA's Safety Standards Series No. GSR Part 6 Decommissioning of Facilities <http://www-pub.iaea.org/MTCD/publications/PDF/Pub1652web-83896570.pdf>

A4.21 The 2016 Order includes a new section 7B which extends the nuclear third party liability regime set out in the NIA65 to operators of installations for the disposal of radioactive waste from nuclear licensed sites **provided that the facilities are located outside a nuclear site boundary**. These facilities are referred to as "relevant disposal sites". Thus, when the relevant provisions of this Order come into force, disposal facilities containing nuclear matter **located outside a nuclear site boundary** will be subject to the nuclear third party liability regime for the first time. These facilities will not have licences from ONR and they will continue to be regulated by the relevant environment agency as before. The relevant environment agency will be responsible for defining the criteria for and deciding when to end the period of responsibility for such facilities.

A4.22 The NIA65, when amended by the 2016 Order, is worded such that it is not possible to have a "relevant disposal site" on a nuclear site. Therefore, when a disposal facility is located on a nuclear site, it is subject to both the nuclear third party liability regime and the nuclear licensing regime as a consequence of its location. In this case, ONR is responsible for notifying the ending of the period of responsibility under the NIA65, rather than the relevant environment agency.

Proposed amendments to regulations concerning relevant disposal sites

A4.23 The current structure of the NIA65 has resulted in some operators looking to locate radioactive waste disposal facilities outside licensed sites. In some cases, this would not represent the best use of land. In order to ensure there are no legislative barriers to the location of disposal facilities, we propose the following changes to the NIA65:

- the definition of relevant disposal sites should be modified to include sites which have been nuclear sites but where a nuclear site licence is no longer in force. This would require an amendment to the new section 7B(5)(a); and
- section 3(12), section 5(14) and section 5(15) should be amended to enable ONR, if in receipt of an application from the licensee, to accept partial or full surrender of a nuclear site licence where there is a disposal facility on that part of the site.

A4.24 On surrender of the nuclear site licence, the site would continue to be regulated by the relevant environment agency through either the EPR16 or RSA93, and by the relevant health and safety regulator, typically HSE.

A4.25 On surrender or variation of the nuclear site licence, the disposal facility would either:

- (a) continue to remain within the scope of the NIA65 as a relevant disposal site under section 7B of the NIA65 (as amended by these proposals); or
- (b) cease to remain within the scope of the NIA65 if it is a disposal facility which meets the criteria of the LLW Disposal Exclusion (see section A4.27).

A4.26 Decisions on the surrender of the nuclear site licence would be made in consultation with the relevant environment agency and HSE. The relevant

environment agency would determine and advise ONR on whether the disposal facility meets the LLW Disposal Exclusion or not.

The low level waste exclusion

A4.27 As explained in the Government's consultation on implementing the changes to the Paris Convention [Ref: A.2.14], the Government considers that low level and very low level radioactive waste disposal facilities do not present a sufficient level of risk to warrant inclusion in the nuclear third party liability regime. In November 2016, the OECD Steering Committee for Nuclear Energy approved a decision to nuclear installations for the disposal of certain kinds of low level waste and very low level waste from the application of the Paris Convention ("the LLW Exclusion" [Ref: A.2.15]). The LLW Exclusion is subject to a number of conditions and criteria including a two-step process: the first step is comparison of the radioactivity concentration in the waste that is received at the installation with a set of thresholds; the second step is a site-specific assessment for comparison with an off-site dose criterion of 1 mSv/year. As discussed in section A4.3, primary legislation may be required to provide Government with the powers to implement this exclusion. Such legislation would set out the criteria to support exclusion of LLW disposal facilities from the provisions for relevant disposal sites under the NIA65 (section 7B).

ONR guidance

A4.28 Under these proposals, ONR is also proposing to update its guidance on ending the period of responsibility and de-licensing. The aim of ONR's revised guidance would be to set appropriate criteria for a nuclear site in the final stages of decommissioning when the nuclear hazards associated with licensable activities have been removed and, therefore, where the 'nuclear' aspect of safety regulation had diminished to the extent where:

- it is more appropriate for safety regulation to be carried out by a different safety regulator, typically HSE; and
- regulation clean-up is more suitably carried out by the relevant environment agency.

Guidance for ending the period of responsibility for nuclear third party liability

A4.29 ONR proposes to develop guidance on the criteria for accepting applications to end the period of responsibility for nuclear third party liability.

Guidance for surrender and revocation of the nuclear licence

A4.30 There is currently an obligation on ONR to consult with the relevant environment agency before revoking a licence under section 5(2) of the NIA65. We propose that the obligation to consult in section 5(2) is modified;

- to reflect the proposed new NIA65 surrender arrangements allowing the site licensee to apply to ONR to surrender its nuclear site licence; and
- to require ONR to consult with both the relevant environment agency and the appropriate health and safety regulator, typically HSE, prior to revoking a licence or varying the geographical extent of the site covered by that licence.

A4.31 In the development of the guidance, ONR is proposing to consider relevant criteria that a licensee would need to meet, to be able to demonstrate that there would be no further need for the regulatory powers provided by the nuclear site licence and its attached conditions.

A4.32 In order to accept surrender of a licence, ONR would need to be satisfied that the licensee has no further need to carry out any activities that require a licence under the NIA65, for the whole or the relevant part of the site. The licensee would need to be able to demonstrate that subsequent work activities are suitable to be regulated under conventional health and safety legislation alone, and that the regulatory powers provided by the licence are no longer be required, for example the powers to:

- impose regulatory hold points³⁰;
- require the production and review of safety cases; and
- require the implementation of adequate decommissioning arrangements.

A4.33 In addition, the guidance would consider relevant criteria for the acceptance of a variation of a licence to exclude that part of the site containing the disposal facility.

A4.34 ONR also regulates waste accumulation and storage on nuclear sites, as well as contaminated land. Once the nuclear licence has ended, any accumulation or storage of radioactive wastes would be regulated by the relevant environment agency under RSR.

A4.35 ONR proposes that its revised guidance considers the need for the licensee to demonstrate to ONR's satisfaction that at the time the site licence was surrendered, or varied to exclude part of the site the radioactive land contamination present on the site, or on that part of the site excluded from the varied licence, was regulated by RSR.

A4.36 ONR and HSE will consider the need for guidance on the transition of health and safety regulation from ONR to HSE for nuclear sites in the process of being decommissioned.

³⁰ For example, inspections of work may be required before proceeding to the next stage of land remediation.

Guidance on the liability regime for disposal sites

The environment agencies will consider the need to develop guidance for the application of the nuclear third party liability regime for disposal sites (e.g. the LLW exclusion when implemented into UK law and the ending of the period of responsibility for those sites which are not excluded).