Guidance on Requirements for Release of Nuclear Sites from Radioactive Substances Regulation; Consultation Document February 2016:

Agencies Response to Consultation Comments: November 2016

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1. Introduction and Context

1.1 Introduction

1.1.1 The Scottish Environment Protection Agency (SEPA), the Environment Agency (EA) and Natural Resources Wales (NRW), together referred to as "the environment agencies", published our proposed new guidance on "Requirements for Release of Nuclear Sites from Radioactive Substances Regulation" for the purpose of public consultation on the 15th February 2016. The formal consultation remained open for 12 weeks, until 9th May 2016.

1.1.2 For the purpose of the consultation the environment agencies asked 5 questions (see below), as well as providing the opportunity for respondents to make detailed comments on the text on the report.

Question 1. *"Our requirements for a site wide environmental safety case (SWESC: see Chapter 5, Requirement R3, paragraphs 5.2.7 to 5.2.17, and all of Chapter 6) in conjunction with a waste management plan (WMP: see Chapter 5, Requirement R4, paragraphs 5.2.18 to 5.2.24, and all of Chapter 7) are intended to provide an effective framework for defining the state in which a nuclear site can be released from radioactive substances regulation, and for planning and carrying out the work needed to achieve that state.* ***Do you agree that a SWESC and WMP will provide an effective framework?*** *If you do not agree, or are not sure, please tell us why."*

Question 2. *"Our radiological requirements (see Chapter 5, Requirements R6, R7 and R8, paragraphs 5.3.1 to 5.3.65) in conjunction with a possible period of restricted use of no longer than 300 years (see Chapter 8, paragraphs 8.3.10 to 8.3.14) are intended to provide adequate protection of people and the environment from the effects of ionising radiation.* ***Do you agree that our requirements will provide adequate protection?*** *If you do not agree, or are not sure, please tell us why."*

Question 3. *"Our requirement for optimisation (see Chapter 5, Requirement R10, paragraphs 8.3.66 to 8.3.84) of the management of radioactive waste and contamination on a site is intended to ensure that exposures to people are kept as low as reasonably achievable. This may not necessarily lead to all radioactivity being removed from a site.* ***Do you agree with this approach?*** *If you do not agree, or are not sure, please tell us why."*

Question 4. *"The GRR gives operators the option to apply for a site to be released from radioactive substances regulation before the end of a period of restricted use (see Chapter 8, paragraphs 8.3.10 to 8.3.14, 8.5.14 and 8.5.15). We may allow release during this period, provided the operator can assure us that the necessary arrangements for control of the site will be maintained for the remainder of the period of restricted use. We consider that this approach could continue to adequately protect people and the environment, even though regulation of radioactive substances activities by the relevant environment agency would have ceased.* ***Do you agree with this approach?*** *If you do not agree, or are not sure, please tell us why."*

Question 5. *"Our requirements are set out in Chapter 5, Requirements R1 to R14.* ***Do you think that there is anything missing from Chapter 5 that may prompt the need for a Requirement in addition to Requirements R1 to R14?*** *If you do, please tell us what that additional Requirement should be."*

1.1.3 We received 22 responses to our consultation. This report documents our review of those responses and sets out how we propose to act upon those comments when revising the consultation document.

1.1.4 From the 22 responses received the environment agencies have not noted anything that would suggest our fundamental approach needs to be modified. We therefore plan to publish the revised guidance document in the summer of 2017, after the completion of the period of trial use that is currently being undertaken by the nuclear industry.

1.2 Layout of the Response Document

1.2.1 This response document provides an analysis of the consultation responses to the five consultation questions that we posed. We provide an overview of the collective views that have been expressed and pick out some of the common themes from multiple responders.

1.2.2 In addition to the analysis we have tabulated the detailed responses in appendices at the end of this report were we have provided individual responses. In these responses we have indicated broadly how we intend to address the points raised.

1.3 Responders to the Consultation

1.3.1 For the purpose of this report and for ease of reference we have allocated a reference number to each of the responding parties. The following table identified the responses received and the assigned identifier numbers which are used throughout the rest of this document.

Ref	Responding Organisation / Person
1	Atomic Weapons Establishment (AWE)
2	Copeland Borough Council
3	Dounreay Site Restoration Ltd (DSRL)
4	Eden Nuclear & Environment (Andy Baker)
5	EDF Energy
6	Essex County Council
7	Gloucestershire County Council
8	Highland Council
9	John Heathcote Consulting Ltd
10	Julie C Robinson (LLM in Environmental Law and Practice, De Montfort University)
11	Low Level Waste Repository Ltd
12	Magnox Ltd (submission plus an addendum)
13	Marion Hill
14	Nuclear Industry Group for Land Quality (NIGLQ)
15	Nuclear Decommissioning Authority
16	Nuclear Free Local Authorities
17	Nuclear Legacy Advisory Forum (NuLeAF)
18	Office for Nuclear Regulation (ONR)
19	Public Health England
20	Scottish Councils Committee on Radioactive Substances (SCCORS)
21	Suffolk Coastal District Council
22	West Cumbria & North Lakes Friends of the Earth

2. Analysis of Responses to Consultation Questions

2.1 Consultation Question 1 (SWESC and WMP)

2.1.1 Of the 22 respondents to the consultation 18 provided a response to Question 1 (Do you agree that a SWESC and WMP will provide an effective framework?). Of those who provided comments 83% (15 responders) agreed that the SWESC and WMP would provide an effective framework.

2.1.2 Two respondents agreed outright that the SWESC and WMP will provide an effective framework with the remaining 14 agreeing but providing additional comments. These comments were largely asking for further information on the role of the SWESC and WMP in relation to other existing documents, regulatory requirements and approvals.

2.1.3 Two further respondents provided responses that were neutral in relation to the question; raising points in relation to the potential overlap of regulation and to land falling under contaminated land legislation.

2.1.4 Only one respondent provided a negative comment to this question.

2.2 Consultation Question 2: (Radiological protection)

2.2.1 Of the 22 respondents to the consultation 18 provided a response to Question 2 (Do you agree that our requirements will provide adequate [radiological] protection?). Of those who provided comments 72% (13 responders) agreed that our guidance provided adequate radiological protection of the public.

2.2.2 The majority of respondents who agreed that the requirements set out in the GRR would provide adequate protection added further comments. Issues raised included points of clarity, responsibilities for the site post radioactive substances regulation (RSR), and the relationship with other legislation.

2.2.3 Two of the respondents were generally neutral with the remaining three respondents providing critical responses. Of those who were critical it the main concern was over responsibilities after RSR comes to an end.

2.3 Consultation Question 3 (Our approach to optimisation)

2.3.1 Of the 22 respondents to the consultation 18 provided a response to Question 3 (Do you agree with [our] approach [to optimisation]?). Of those who provided comments 61% (11 responders) agreed with our approach to optimisation.

2.3.2 Some of the supportive respondents added comments requesting further clarification, for example, on the timing of application for any disposals intended on sites where prolonged quiescent periods are planned.

2.3.3 33% (6 responders) of those who responded were neutral with respect to the process of optimisation.

2.3.4 The remaining 2 respondents suggested some variations on the process of optimisation and emphasised the need to ensure future uses for the site were considered.

2.4 Consultation Question 4 (Option for early release from RSR)

2.4.1 Of the 22 respondents to the consultation 16 provided a response to Question 4 (Do you agree with [the option for release from RSR before the end of the period of restricted use] approach?). Of those who provided comments 56% (9 responders) were in agreement with the approach, citing proportionality and flexibility as benefits of the approach.

2.4.2 25% (4 responders) of those who responded were neutral, with most comments stating that there needs to be more clarity on where responsibilities will lie and be transferred following release from RSR.

2.4.3 Three responders did not agree with the approach, citing specific concerns over the responsible body that would need to take over after release from RSR.

2.5 Consultation Question 5 (The need for more requirements)

2.5.1 Of the 22 respondents to the consultation 14 provided a response to Question 5 (Do you think that there is anything missing from Chapter 5 that may prompt the need for a Requirement in addition to Requirements R1 to R14?). Of those who provided comments 71%, (10 responders) agreed that no additional requirements were required.

2.5.2 Three responders suggested that further requirements could be added

2.5.3 One respondent queried the need for all of the requirements suggesting that they were not all needed.

3. Common Themes In Responses

3.1 Introduction

3.1.1 Our review of the consultation comments received has identified a number of common themes raised by respondents. These themes prompt a number of questions about the standards set out in our guidance and the regulatory approach to applying those standards. This section of the report identifies these common themes and provides the Agencies views regarding the issues raised.

3.2 How do our requirements set out in the GRR protect the public and the environment from ionising radiation?

3.2.1 The Agencies have a number of responsibilities with respect to the regulation of nuclear sites. In order to release a site from the radioactive substances regulation (RSR) regime we need to be satisfied that the activities we regulate have ceased, that any disposals of radioactive waste on a site have been properly authorised, and that the site as a whole does not pose an unacceptable risk. The release of a nuclear site from RSR is therefore not a simple, one-time, event but should be thought of as a process throughout the decommissioning of a site.

3.2.2 Our legal framework for protecting the public and the environment is underpinned by, and consistent with, the international legal framework. In particular it is in accordance with the Euratom basic safety standards (BSS Ref) that are themselves based on internationally accepted advice and guidance, in particular from ICRP (ICRP ref) and IAEA (IAEA ref?). In addition to this, in the UK, Public Health England provides advice to Government and others on radiological protection, which we have taken full account of in the development of our guidance.

3.2.3 To ensure that we provide the level of protection that is required by UK legislation (founded on the international recommendations and legislation) we have developed the 14 requirements that are set out in our guidance. It is only by complying with **all** of these requirements, both during and after decommissioning, that a nuclear site will eventually be able to be released from our regulatory regime.

3.2.4 In order to ensure doses from ionising radiation are acceptable, we make use of several numerical standards to protect the public, now and into the future. Three of our requirements set out these numerical standards, which are drawn from UK legislation and advice from Public Health England (ref). In addition, we have set an upper limit, of 300 years, on the period over which continuous knowledge and control of a site might be reasonably expected.

3.2.5 These numerical standards, working in combination with our other non-numerical requirements, together provide the required protections.

3.3 Why do we use a dose guidance level for inadvertent human intrusion?

3.3.1 The “dose guidance level” set out in requirement R8 is specifically targeted at the issue of inadvertent intrusion into radioactive waste by humans living and working on a former site after control of that site has ended and knowledge of the site has

been lost. This numerical criterion is taken directly from our guidance for near-surface disposal facilities published in 2009[1].

3.3.2 Our consultation document is also entirely consistent with the advice from Public Health England[2] (PHE), which recognises that the likelihood of inadvertent human intrusion into the near-surface environment is highly uncertain and cannot be quantified in a reliable way. Furthermore, measures to reduce the likelihood of such intrusion are only likely to delay, rather than prevent intrusion, and the assumption must be that intrusion will occur eventually. PHE advises that this necessary assumption leads to the need to mitigate the consequences of intrusion after the site is no longer controlled.

3.3.3 The PHE advice identifies the dose range that we use to limit the impact on people who might intrude into radioactive waste after the site has ceased to be controlled. The PHE advice explains the derivation of the range of dose guidance levels, intended to encompass short-term and long-term exposure situations. This approach provides a more certain level of protection of people in future, by constraining the potential exposures to acceptable levels.

3.3.4 The approach to human intrusion set out in the PHE advice and used in the Agencies 2009 Near-surface GRA can be relatively simply explained by comparison with the standard risk based approach. We need to consider a set of scenarios after the end of control of the site in which people who may have no knowledge of that site come into contact with the waste. The exact means of disturbing the waste, by drilling, excavation etc., is not important only the fact that intrusion into the waste might occur.

3.3.5 To investigate these risks using a standard risk assessment approach (that is using our risk guidance level of 10^{-6}/yr) we need to calculate the probability of an intrusion event occurring. We would consider a number of plausible human intrusion scenarios, and could assign each scenario a different probability of occurring in any one year, after the end of control of the site. The risk assessment approach could determine some scenarios acceptable, because of their very low assigned probability, even though they may result in very high doses. This approach also requires that reasonable and repeatable estimates of the probability of a human intrusion event occurring can be made, which is generally considered impracticable.

3.3.6 Our use of the PHE advice means that we avoid the two problems identified above. First, we eliminate the need to make an estimate of the probability of a human intrusion event occurring, by assuming the event will occur for any disposal in the near surface. Second, we ensure that doses are capped to levels that are tolerable even for very low probability events by applying the recommended dose guidance range of 3 to 20 mSv/yr. This dose range effectively acts as a surrogate for risk as it takes account of the uncertainties of the human intrusion events occurring.

3.4 Why have we chosen a 300 year limit for the period of restricted use?

3.4.1 We take the position that, because of the major social changes that may accumulate over long periods of time, it is unlikely that the environment agencies would accept a claim for a period of restricted use lasting longer than 300 years from the end of planned operations involving radioactive substances. The period of 300 years is not

[1] EA, SEPA and NEA, 2009. Near-surface Disposal Facilities on Land for Solid Radioactive Wates: Guidance on Requirements for Autorisation. EA Bristol

[2] Formerly the Health Protection Agency (HPA)

a precise figure but, in recent centuries, social structures and priorities have changed beyond recognition over such a length of time. There is no indication that such rapid social change has abated. Longer ago, many societies that once flourished were eradicated completely over a comparable period. We thus judge that there can be little or no confidence that any system of land use control predicated on current social structures and priorities would survive for more than about 300 years[3].

3.4.2 Although we can't look forward 300 years, we can illustrate the issue by looking backwards to see how different the world was then. For example, in 1716:

- The Kingdom of Great Britain had been in existence for less than a decade, and it would be another 85 years before the creation of the United Kingdom of Great Britain and Northern Ireland.
- Most of the Mediterranean, the Black Sea, the Balkans and the Middle East were under the control of the Ottoman Empire.
- Australia had only been explored to a limited extent.
- The first slaves arrived in Louisiana, a North American territory belonging to France.
- The first successful piston steam engine was developed around 4 years earlier, paving the way for the launching of the Industrial Revolution some 50 years later.
- Sir Isaac Newton was Master of the Mint.
- Planning legislation in Great Britain was still nearly 200 years in the future.

3.5 How does our optimisation requirement allow site specific solutions to take account of local issues?

3.5.1 Our optimisation requirement is perhaps one of the most important requirements in our consultation document. It gives effect to an essential principle of the international system of radiation protection, that exposures must be kept as low as reasonably achievable, taking account of economic and societal factors. It is at the core of the UK Governments' policy on "the Decommissioning of the UK Nuclear Industry's facilities" which requires an optimised decommissioning programme and our approach to the development of the plans for managing waste and contamination on a nuclear site. This approach is to ensure that solutions strike an appropriate balance between human health, environmental, societal, economic and other relevant factors, so that nuclear sites may eventually be released from regulation under radioactive substance legislation.

3.5.2 In the context of nuclear site decommissioning and clean-up optimisation is primarily about finding a site specific solution that takes account of relevant local, national and international factors. These factors will include the physical location and characteristics of a site, views of local communities for redevelopment opportunities, concerns about nuisance, local and national planning strategies, funding priorities, international obligations etc. Any solution identified by the optimisation process must also be complaint with the all the requirements in our guidance to be a valid solution.

[3] Reference: "Collapse - How Societies Choose to Fail or Succeed, by Jared Diamond (published in 2005 by Viking Penguin, ISBN 0-670-03337-5)"

3.5.3 In conclusion, optimisation seeks to ensure that radioactive waste and contamination is managed in a way that looks at the site as a whole, and identifies the best solution for the particular site taking account of the wider societal constraints, concerns and aspirations.

3.6 How does the GRR fit into the wider regulatory framework?

3.6.1 Nuclear sites are complex industrial sites that are subject to a wide range of legislation including that relating to environmental protection and nuclear safety. Inevitably there are issues where several legal requirements apply and need to be considered by a nuclear site operator. In these situations the operator needs to comply with all legislation.

3.6.2 The Agencies have entered into memoranda of understanding (MoU) with the Office for Nuclear Regulation (ONR), which set out arrangements for co-operation between the regulators, to minimise the potential for conflicting or contradictory requirements being placed upon nuclear site operators.

3.6.3 In addition to these arrangements we have attempted to make it clear in our consultation document that we are non-prescriptive about how our requirements are shown to have been met. We encourage the operators to make use of documentation and work that they are required to undertake for other purposes.

3.6.4 The main vehicle for the demonstration that a site's waste management plans comply with our requirements is the site wide environmental safety case (SWESC). We have tried to make it clear that we do not prescribe a single document but that use can be made of existing documentation where appropriate.

3.7 Why have we included the idea of releasing a site during a period of restricted use?

3.7.1 The Agencies cannot and will not pass on any of our regulatory duties to another body. For the avoidance of doubt, we cannot hand over any regulatory controls associated directly with a RSR permit.

3.7.2 An operator may seek to surrender a permit during a period of restricted use (i.e. before the site reference state is reached) only if they can demonstrate that public protection and environmental controls, appropriate to the level of risk, are in place, such that continued regulation under RSR is unnecessary.

3.7.3 The environmental controls required in the future may take a number of different forms including the possibility of future other bodies, that have been assigned by government the necessary powers and resources to oversee any controls that would be required at that time.

3.8 How does the GRR satisfy the 2006 Groundwater Directive?

3.8.1 The 2006 Groundwater Directive Article 6 sets out measures to prevent the input of hazardous substances to groundwater. For the purposes of this directive, radioactive substances, as defined in RSR, are considered to be hazardous substances when in scope of the legislation and as such should be prevented from entering groundwater for the purpose of permissioning undertakings on a nuclear site. This means that we will take account of the requirements of the 2006 Groundwater Directive in all authorisations for the disposal of radioactive waste on site, whether to a waste disposal facility or in other ways.

3.8.2 Inputs of radioactive substances that occur as a result of loss of control or containment, such as accidents or leaks, are not inputs subject to authorisation by the Agencies. The Agencies require operators to remediate any groundwater contamination caused by such inputs, in accordance with relevant published policies and guidance.

4. Conclusions and Next Steps

4.1.1 The Agencies welcome the good number of responses received to our consultation. In addition we are very pleased with the overall positive responses to our questions which indicate a good general understanding of how we are proposing to protect people and the environment while taking account of site specific issues. There have also been a large number of useful comments on the detailed text of the document that will be used to improve the clarity of the final published guidance.

4.1.2 From our review and analysis of the consultation responses we are confident that the approach set out in our consultation document will protect people and the environment. We have not identified the need for any substantive changes to our approach in order to progress to producing our final published guidance.

4.1.3 Nor have we identified the need for any immediate revision or update to the consultation document. It will therefore remain unchanged during a period of trial-use at a number of selected nuclear sites until mid-2017.

4.1.4 We will make use of the consultation responses and the operational feedback from the trial-use of the consultation document when developing the final guidance. We plan to publish our finalised guidance in mid-2017.

Annex A1 Detailed responses to GRR Chapter 1

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
12	1.1.3	Although in some cases it will be many years before all this work is completed, decisions are needed now about the level of clean-up required and whether to leave some radioactive waste in situ.	Although in some cases it will be many years before all this work is completed, decisions at some sites may be needed now about the level of clean-up required and whether to leave some radioactive waste in situ.	The original text was read by some reviewers as seeming to imply that the environment agencies intend to require imminent decisions on clean-up and in situ disposal, regardless of the timescale for requiring any authorisation for disposal or application for release from RSR. We do not think this implication is intended; hence the suggested amendment.
The Agencies recognise the issue raised and will consider revising this text to see if we can improve the clarity of the paragraph.				
13	Ch 1			Introductory Material The GRR document does not need a preface, a “stakeholder summary”, and “introduction to the guidance” and introductions to each of sections 3-8. There is also a problem with titles in that the “stakeholder summary” is actually an introduction and the “introduction to the guidance” is largely a summary. I suggest that there should only be one introduction in the GRR document and that this should only cover why the guidance has been produced, who it is for and how it is laid out. If subsequent sections need introductory

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
				material this could be in the form of text boxes that summarise very briefly what is in the section.
We will review the introductory material at the beginning of the document, and decide what will be necessary to carry forward to the published guidance. Given the need to balance the specialist nature of this document with the need to ensure that it is, so far as is reasonably practicable, accessible to a wider audience, we intend to keep the introductory sections to each chapter, so that everyone can understand what the chapter is about.				
14	Title page	Guidance on Requirements for Release of Nuclear Sites from Radioactive Substances Regulation		The guidance sets out that SWESC and WMP should document a sites decommissioning and remediation journey under RSR and the eventual release from RSR. Could the document title better reflect this?
We will review the title to see whether a change is appropriate.				

Annex A2 Detailed responses to GRR Chapter 2

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
13	Ch 2			**Introductory Material** The GRR document does not need a preface, a “stakeholder summary”, and “introduction to the guidance” and introductions to each of sections 3-8. There is also a problem with titles in that the “stakeholder summary” is actually an introduction and the “introduction to the guidance” is largely a summary. I suggest that there should only be one introduction in the GRR document and that this should only cover why the guidance has been produced, who it is for and how it is laid out. If subsequent sections need introductory material this could be in the form of text boxes that summarise very briefly what is in the section.
We will review the introductory material at the beginning of the document, and decide what will be necessary to carry forward to the published guidance. Given the need to balance the specialist nature of this document with the need to ensure that it is, so far as is reasonably practicable, accessible to a wider audience, we intend to keep the introductory sections to each chapter, so that everyone can understand what the chapter is about.				

Annex A3 Detailed responses to GRR Chapter 3

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
3	3.1.3	Operators need to read and apply this guidance within a wider context.		It would be useful for the document to provide more information on the context of the release of authorised sites. This is provided for in 3.7.1 for the Nuclear Installations Act but similar information relating to the Environmental Protection Act, the Town and Country Planning Act, the Energy Act and government policy stated in Cm2919 would be of value.
The Agencies understand the point that is raised here regarding the wider context, however, this is beyond the scope of the guidance and we therefore do not intend to add any text in this instance.				
3	3.4.3	We may require a separate authorisation for a dedicated waste disposal facilit that is a facility subject to our *Near-surface disposal facilities on land for solid radioactive wastes: Guidance on requirements for authorisation* ("NS-GRA"; Environment Agency et al 2009.	We may require a separate authorisation for a dedicated waste disposal facility that is a facility subject to our *Near-surface disposal facilities on land for solid radioactive wastes: Guidance on requirements for authorisation* ("NS-GRA"; Environment Agency et al 2009).	Missing parenthesis at end of sentence.
The Agencies will make this correction.				
3	3.6.1	But we encourage operators to extend the WMP and the SWESC to consider all hazards on site, both radiological and		We fully support the idea of integrated management of radio-toxicity and chemo-toxicity. However, the levels of technical

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
		non-radiological, so as to develop a single integrated approach that takes account of and meets all relevant regulatory expectations in relation to protection of people and the environment.		difficulty and understanding are very different, as are the legal frameworks. We would welcome proposals by regulators to integrate this. For the time being, we have concluded that they cannot be managed in the same way.
The Agencies recognise that this paragraph could cause some confusion. The phrase “single integrated approach” here was not intended to refer to a common methodology for radiological and non-radiological hazards. We will modify the text to provide greater clarity.				
3	3.7.1	There is currently no direct statutory link between release from RSR regulation and the ONR de-licensing process.	There is currently no direct statutory link between release from RSR and the ONR de-licensing process.	Remove redundant “regulation”
The Agencies will make this correction.				
4	3.7 6.2.21 7.2.21 8.3.3 8.5.19 - 21			We have some concerns over the possible overlap or contradictions between ONR delicensing and the release from RSR regulation. It will be most important that the approach to these two processes is co-ordinated so far as possible so as to avoid inconsistent requirements or the need for unnecessary duplication of similar documents covering the same ground.
The Agencies agree that this is an issue that needs to be addressed. The Agencies and ONR are currently working with Government and other stakeholders on proposals for improving clarity on regulatory roles in the later stages of decommissioning and clean-up.				

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
4	3.2.3			Paragraph 3.2.3 in the introduction is difficult to follow since it refers to concepts and details introduced later in the document. It might be better to remove much of the detail from this paragraph.
The Agencies recognised the issue raised and will consider revising this text to see if we can improve the clarity of the paragraph.				
4	3.3.1			The abbreviations WMP and SWESC are introduced in Paragraph 3.3.1 for the first time without explanation.
The Agencies will make this correction.				
5	3.3.1	Operators should ensure the site is characterised before construction commences and that an appropriate WMP and SWESC are in place when applying for authorisation for any new facility.		We request clarification on 'authorisation for any new facility'. Is the intention here that a WMP and SWESC would be required for a new nuclear generation site, (if so we would challenge the value / benefit of such an approach)? Or by 'new facility', is the implication a new on site disposal facility?
The Agencies guidance applies over the full life cycle of a nuclear facility, however, the WMP and SWESC will at this stage be relatively simple comprising mainly a statement of the condition of the site prior to any nuclear material being present. We will look at the guidance text to see if we can clarify this point.				
5	3.4.1	The operator will need to establish and maintain, as a condition of the RSR		We would like to understand when such a condition might be imposed, for example,

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		permit: a side-wide environmental safety case (SWESC)…; and a waste management plan (WMP)…		could this be within the operational lifetime of a nuclear power station site. There may be little value in imposing such a condition many years prior to end of generation and the requirement could divert resource and focus from operational nuclear safety. It could also duplicate existing requirements for operational sites, (e.g. integrated waste strategies, through life management strategies, radioactive waste management safety cases etc.)
The Agencies guidance applies to the full lifecycle of a nuclear facility. Our intention is that authorisations/permits will have standard conditions that require the maintenance of these two documents (or collections of documents). However, the plans for implementation of this guidance are still being developed so no firm timeframes are available at present for how these conditions will be introduced. We do not intend to address issues of implementation within the guidance but there will be discussions with industry regarding these matters as our plans develop.				
5	3.4.2	The operator should prepare the SWESC and WMP at the earliest practicable opportunity, and review and, where appropriate revise them to maintain up to date documentation.		Refer to response for 3.4.1 above. A power station site with many years of operational life remaining, could possibly prepare a SWESC and WMP. However, it's value and use would be questionable given the development of a site over its lifetime and changes to the regulatory landscape over time.
The Agencies do not agree with this comment as we see the early development of a WMP and SWESC as useful tools for the management of radioactive waste and contamination on a nuclear site throughout its lifecycle. We recognise, however, that these documents are unlikely to be				

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complete in the first iterations and we would always be looking for proportionate responses to the conditions of the authorisation/permit.				
5	3.4.3	We encourage operators to make a single application based on their WMP for all planned waste disposals, recognising that may be subject to review and revision over time.		We welcome the intent within this paragraph, for a single disposal application to reduce multiple and complex interactions between operator and regulator. However, there may be timing issues in this regard. If a single disposal application is made at an early stage of decommissioning, there may be significant uncertainties regarding the optimised position for certain wastes requiring disposal, rendering a single application less robust. Depending on the Agencies expectations for when such a single application is made, interactions may in fact be more complex compared with a number of applications over a period of time.
The Agencies agree with this comment and recognise that a single application for a variation to the authorisation/permit may not be practicable. We will amend the text here to reflect this and provide additional text in Chapter 8 to more fully explain this matter.				
5	3.6.1	But we encourage operators to extend the WMP and the SWESC to consider all hazards on site, both radiological and non-radiological, so as to develop a single integrated approach that takes account of and meets all relevant regulatory expectations in relation to		Whilst there are obvious benefits in an integrated waste management strategy. The WMP and SWESC may lose focus if they include lengthy detail regarding non-radioactive waste and non-radioactive land contamination. These matters will need to be addressed although the WMP and

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		protection or people and the environment.		SWESC may not be the best tools to facilitate this.
The Agencies are making a recommendation here, it will be up to the operator to present the required information in as efficient and effective a manner that satisfies the requirements of our guidance along with any other issues that a sites needs to address. The Agencies would like to stress that we do not specify the form of the WMP and SWESC hence they might comprise a single document or a collection of documents. We will consider how we could revise the guidance to provide greater clarification of this point.				
12	3.6.3 and 6.3.33	*Further clarification sought - see Comments.*	*Further clarification sought - see Comments.*	We are curious as to why in 3.6.3 and 6.3.33 (dealing with protection of groundwater from pollution by radioactive substances and other pollutants) the cited guidance for England and Wales is the DEFRA 2011 guidance rather than the EA's supplementary guidance to the NS-GRA, or the EA's Groundwater Protection: Principles and Practice (GP3) guidance.
The Agencies recognise that further clarification regarding the issues of groundwater protection might be useful. We will be considering how we might be able to provide greater clarity and improve referencing to other documents in this area. With respect to this specific comment the guidance referred to applies only to disposal facilities.				
13	3.2-3.7, 8.4 and 8.5			*Regulatory Context and Procedures* I think that Sections 3.2-3.7, 8.4 and 8.5 in the GRR CD should be streamlined and combined in a new Section 2 with a title such as "Regulatory Context and Procedures". This would explain what the

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				issues are for release of nuclear sites from RSR and outline the regulatory procedures in which the subsequent objective, principles and requirements will be applied. It would not pre-empt, duplicate or supplement any of the text on principles or requirements.
The Agencies acknowledge that there are many different ways to structure a document and to a great extent this is a matter for judgement. During the development of the consultation document we considered a number of alternative ways of structuring the information to address a range of competing issues. We believe that the current structure is reasonable and do not intend to restructure the GRR at this time.				
13				*Introductory Material* The GRR document does not need a preface, a "stakeholder summary", and "introduction to the guidance" and introductions to each of sections 3-8. There is also a problem with titles in that the "stakeholder summary" is actually an introduction and the "introduction to the guidance" is largely a summary. I suggest that there should only be one introduction in the GRR document and that this should only cover why the guidance has been produced, who it is for and how it is laid out. If subsequent sections need introductory material this could be in the form of text boxes that summarise very briefly what is in

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				the section.
The Agencies acknowledge that there are many different ways to structure a document and to a great extent this is a matter for judgement. During the development of the consultation document we considered a number of alternative ways of structuring the information to address a range of competing issues. We believe that the current structure is reasonable and do not intend to restructure the GRR at this time.				
14	3.1.3	Operators need to read and apply this guidance within a wider context.		It would be useful for the document to provide more information as to what should be considered in the wider context (e.g. as Section 3.7.1 does in relation to the Nuclear Installations Act). For example, additional information regarding the UK Decommissioning Strategy, the Environmental Protection Act, the Town and Country Planning Act, UK LLW Policy and UK Discharge Strategy etc would be valuable.
The Agencies understand the point that is raised here regarding the wider context, however, this is beyond the scope of the guidance and we therefore do not intend to add any text in this instance.				
14	3.3.1	Operators should ensure the site is characterised before construction commences and that an appropriate WMP and SWESC are in place when applying for authorisation for any new facility.		Is the expectation that a WMP and SWESC would be required for a new nuclear generation site? Alternatively, does this only relate to a new on site disposal facility? Clarification as to whether 'authorisation for any new facility' refers to a new licensed / permitted site and/or to construction or development on part of an existing site

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				would be valued.
The Agencies guidance applies to the full life cycle and to the entirety of a nuclear facility it is not exclusively for an on-site disposal facility. The text in this paragraph is, however, specifically talking about new nuclear facilities (not disposal facilities). We will look at this text to see if we can provide more clarity here.				
14	3.3.7	We use the term “site reference state” to refer to the condition in which a site is available for unrestricted use. Even if this state is achieved immediately on completion of all planned work, we anticipate there will be a minimum period before release from RSR for the purposes of validation monitoring (see R13).	We use the term “site reference state” to refer to the condition in which a site is potentially available for unrestricted use. Even if this state is achieved immediately on completion of all planned work, we anticipate there may be a period before release from RSR for the purposes of validation monitoring (see R13).	It appears that achievement of a site reference state does not necessarily equate to release from RSR, as validation monitoring may be needed (but not necessarily in all cases; e.g. if there are long records of monitoring after achieving an Interim End State). Clarification on this would be valuable.
The Agencies believe that the text in this paragraph is sufficiently clear and we do not propose to make amendments. However, more detailed text is provided in Chapter 8 that we will consider updating.				
14	3.3.9	An operator wishing to rely on a period of restricted use will need to provide assurance that the controls proposed will be sufficient to meet the relevant requirements and that the arrangements for applying the controls can be relied on to be implemented as planned and maintained as long as necessary. Such controls might take a variety of forms, such as RSR permits, local authority		It would be useful if this stated that restricted land use could involve purely passive institutional controls rather than necessarily active ones.

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		planning controls and other legal instruments. The existence of an RSR permit does not itself preclude use of the site for other purposes, but permit conditions might be used to provide appropriate controls.		
The Agencies do not agree with this comment, our guidance accepts that where there are any controls required to be exercised over a site (or part of a site) there will be some restrictions on the use of that site. During the development of our guidance the Agencies reviewed the use of the qualifiers of the word control including “institutional, passive and active” and concluded that these terms, although widely used, are not clearly defined and hence we believe they are not helpful discriminators. To ensure that we have been consistent with our approach to the term “control” we will review our use of these qualifiers in our guidance.				
14	3.4.1	Operator will need to establish and maintain, as a condition of the RSR permit: • a site-wide environmental safety case (SWESC) demonstrating that people and the environment are, and at all future times will continue to be, adequately protected from the radiological hazard and any non-radiological hazards associated with all the anthropogenic radioactivity (excluding background) remaining on or adjacent to the site; and • a waste management plan (WMP) setting out the current intent for dealing with this anthropogenic radioactivity. The		Will it be necessary to maintain a WMP once ‘all planned works’ have been completed

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		waste management plan (WMP) may be regarded as part of the wider decommissioning and clean-up plan for the site.		
The Agencies can confirm that once all planned work has been completed then subject to no unexpected observations during the validation monitoring period there will be no need to update the WMP. However, we do not feel that it is necessary to update the text in this paragraph but will consider providing some clarification in Chapter 7.				
14	3.4.3	We encourage operators to make a single application based on their WMP for all planned waste disposals, recognising that may be subject to review and revision over time.		A single disposal application has the benefit that it will reduce the need for repeated application and/or iteration. This may not however be straightforward. For instance if a single disposal application is made during the plant's operational phase or at an early stage of decommissioning, it may not be possible to define an optimised approach, or at least provide the level of detail that would be appropriate to an application. Depending upon when an application is required, this might involve a number of iterations, potentially over an extended period. It is therefore difficult to envisage how a single disposal application process would work. Perhaps the guidance could state that either an operator is not required to formally submit the WMP and SWESC until an application for disposal on-site or release from RSR is made, or that the decision on

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				when to apply rests with the operator.
The Agencies agree with this comment and recognise that a single application for a variation to the authorisation/permit may not be practicable. We will amend the text here to reflect this and provide additional text in Chapter 8 to more fully explain this matter.				
14	3.6.1	But we encourage operators to extend the WMP and the SWESC to consider all hazards on site, both radiological and non-radiological, so as to develop a single integrated approach that takes account of and meets all relevant regulatory expectations in relation to protection or people and the environment.		We support an integrated approach to the management of radiological and non-radiological substances, particularly with regard to the protection of groundwater. However, these substances are regulated under different regulatory regimes, and have different assessment approaches and end points. We would therefore welcome further guidance on how to achieve an integrated approach as we are currently unsure how this can be implemented and whether this approach is accepted by the non-nuclear environmental regulators?
The Agencies are making a recommendation here, it will be up to the operator to present the required information in as efficient and effective a manner that satisfies the requirements of our guidance along with any other issues that a sites needs to address. The Agencies would like to stress that we do not specify the form of the WMP and SWESC hence they might comprise a single document or a collection of documents. We will consider how we could revise the guidance to provide greater clarification of this point.				
18	3.1			ONR recommends that (1) the document should provide a clearer statement of the legal basis of the guidance and how it implements Government policy; and (2) there should be better alignment of the text

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				with legislation and Government guidance on matters such as waste definitions and timing of disposal.
We consider that the guidance is consistent with RSR legislation, and relevant Government policy, however, we will look again at the introductory sections of the guidance and consider if further clarity can be provided on the legislative and policy drivers behind the document. The Agencies have will also look at clarifying the waste definitions and the timing of disposals.				
19	3.3.1	appropriate WMP and SWESC	Put WMP and SWESC in full	This is the first time they are mentioned
The Agencies will make this correction.				

Annex A4 Detailed responses to GRR Chapter 4

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
3	4.5.3	For example, radioactive wastes may contain residues of substances such as uranium and plutonium. These are heavy metals and as such are chemically toxic as well as being radioactive.	For example, radioactive wastes may contain residues of substances such as uranium and plutonium that are chemically toxic as well as being radioactive.	There is no direct association between 'heavy metal' and toxicity.
The Agencies will make this change.				
5	4.6.1	The site shall be brought to a condition at which it can be released from radioactive substances regulation, in a manner such that unreasonable reliance on human action to protect people and the environment against radiological and any associated non-radiological hazards is avoided both before and after the site is released.		The term 'unreasonable' is ambiguous, particularly in the context of any actions taken before the site is released. Further clarification and guidance would be beneficial in this regard.
The agencies will review this text to improve its clarity.				
11	4.3 and 4.5			4.3 and 4.5 Principle 1 and Principle 3 use the wording 'at the time when the relevant actions were undertaken'. We understand this to mean that the relevant standards are those that were effective when disposal occurred rather than the standards

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				appropriate at the time of submission of the SWESC. We think that this is a reasonable and desirable approach. It would be helpful to clarify whether this is the intent of the wording. The question would arise as to how to determine the acceptability of a SWESC for a site with facilities of varying age. There might also be differences in that optimisation decisions relating to a new disposal facility might require a different balance to such decisions in relation to existing in ground contamination.
Yes, the intent of the wording is that authorised disposals made to the national standards applicable at the time of disposal would generally not be superseded by national standards applicable at the time of submission of the SWESC. However, for very long quiescent periods we cannot guarantee that further generations will be content with decisions made today.				
12	4.3.5	This applies to, for example, the numerical standards of protection to people that are provided for the period of RSR by the dose constraints and after release from RSR by the risk guidance level and dose guidance levels for human intrusion.	*Further clarification sought - see Comments.*	Elsewhere (especially 5.3.31), the dose guidance level does not apply until the "site reference state"/"unrestricted use" occurs. See also comment on 5.3.8 regarding risk guidance level.
The Agencies recognise that further clarification on the point at which the risk guidance level and dose guidance levels for human intrusion begin to apply.				
13				*Fundamental Protection Objective*

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				I am not convinced that it is necessary to give a fundamental protection objective solely for release of nuclear sites from RSR. Also, much of what is in the objective is covered by the principles. My preference would be to omit the objective. *Principles – General* The scope and intentions of the principles are appropriate but some of them could be expressed more simply. I would prefer a format similar to that of the Environment Agency's REPs and ONR SAPs, where the principle is short (say three lines at most) and is followed by guidance and explanation to assist in its implementation. I would suggest that material that is only background for the principle be omitted. *Principle 2 – Optimisation* It is essential that reference is made to BAT (England and Wales) and BPM (Scotland), as well as to ALARA. Otherwise the GRR document will not be consistent with other RSR guidance, nor with the terminology in environmental permits / authorisations.
The agencies do not wholly agree with this comment. The fundamental protection objection states clearly what must be achieved. We will review the principles to see whether they can be expressed more simply. On optimisation, we are not convinced there is a need to refer to the agency-specific				

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terms (BAT or BPM) which, in part, give effect to this principle.				
14	4.6.1	The site shall be brought to a condition at which it can be released from radioactive substances regulation, in a manner such that unreasonable reliance on human action to protect people and the environment against radiological and any associated non-radiological hazards is avoided both before and after the site is released.		The term ‘unreasonable’ would benefit from clarification. Further guidance would be welcomed in this area.
The agencies will review this text to improve its clarity.				

Annex A5 Detailed responses to GRR Chapter 5

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
3	5.2.4	Another advantage of early discussions is that we could publish our advice and comments on the operator's proposals for the site reference state.	Another advantage of early discussions is that we **would** publish our advice and comments on the operator's proposals for the site reference state.	Although the environment agencies will not commit to regulatory certainty (para 5.2.2) a commitment to publish advice on comments would help provide confidence in the regulatory process.
The Agencies' recognised the advantage of publishing advice in our original text, however, there may be situations where it is not appropriate and hence we would wish to retain the flexibility to determine such a decision on a case by case basis. We will retain the original wording **could**				
3	5.3.7			It would be helpful to have a statement here about the need for monitoring to be proportionate to the possible hazard, as in para. 5.4.12. It would be expected that monitoring of a quiescent site would be much less than monitoring for an operating or decommissioning site.
The Agencies feel that we make it clear that monitoring should be proportionate at paragraph 3.1.4 and in under Requirement R13, therefore we do not feel it is necessary to repeat it here. In addition we do not necessarily agree with the arguments put forward here about the need for monitoring, it is possible that more monitoring would be required if an operator proposed to make on-site disposals or to leave contamination in the ground ahead of placing the site into a quiescent state.				
3	5.3.13 We have			It would be useful to note what the effect of any change to the risk coefficient during the period of RSR would be – would

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	assumed this refers to 5.3.12			remediation of facilities or limitation of capacity be required?
The Agencies' recognise the concerns that regulatory or statutory requirements may change during a long period of RSR after completion of all planned work. However, our guidance cannot eliminate the possibility that future generations may decide upon different standards for protection of people and the environment. Our guidance does ensure that during RSR and afterwards people and the environment are protected to current standards.				
3	5.3.34	Dose assessments carried out for the purpose of comparison with the dose guidance level should take into account discrete, individually-contaminated items that people might encounter as a result of human intrusion. Such items might range in size from particles to large objects that would be visually identifiable and might be of a recognisable type (such as a hand tool). For smaller items, the operator should consider the possibility that people, including children, might ingest them or inhale them.		This discussion extends the guidance on human intrusion in the NS-GRA. An explanation of the addition and further information on the environment agencies' expectations would be of value
The Agencies believe that this paragraph is clear. It sets out the need to consider the heterogeneous nature of waste that might be disposed on a site when considering human intrusion scenarios. This reflects thinking set out in supplementary guidance to the NS-GRA published by the Environment Agency "*Advice to Environment Agency Assessors on the Disposal of Discrete Items, Specific to the Low Level Waste Repository, Near*				

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Drigg, Cumbria Issue 1.0, 9 January 2014"				
3	5.3.39	An example of a future human action to which the risk guidance level applies is the sinking of a well into an aquifer contaminated by radionuclides from a nuclear site.		This guidance needs to be consistent with the agencies' guidance on groundwater protection generally (para. 6.3.33 and comments thereon)
It is not clear to the Agencies what is meant by this comment. There does not appear to be any inconsistency between paragraph 5.3.39 and 6.3.33				
3	5.3.43			Since publication of the NS-GRA from which this text is derived, there have been published assessments from which regulatory standards have been derived. It would be useful for the scenarios in these assessments to be regarded as a standard set for future assessments so as to reduce the level of speculation and inconsistency between assessments. Regulatory guidance on such an approach would be of great value.
The Agencies believe that the range and nature of scenarios for human intrusion are site specific and as such operators need to address those scenarios pertinent to their specific site. We therefore do not believe that it is possible to provide guidance that can address all possible situations.				
3	5.3.50	In such cases, we would look for any possible proportionate measures for	In such cases, we would only look for proportionate measures for reducing the	As written the environment agencies could request "any possible" proportionate

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		reducing the likelihood of intrusion.	likelihood of intrusion.	measures which is an unreasonable extension of regulatory control
The Agencies do not believe that there is an unreasonable extension of regulatory control implied by the original text. The suggested alternative text does not appear to materially change the sense of the sentence but merely reduces the emphasis placed on the need to look for proportionate measures to reduce the likelihood of intrusion.				
3	5.3.51	Where a non-radiological hazard is associated with the radiological hazard (as with radioactively contaminated asbestos, for example), the operator should include an assessment in the SWESC to demonstrate adequate protection against the non-radiological hazard presented by the radioactive substances exposed by human intrusion (see also Requirement R11).	Where a non-radiological hazard is associated with the radiological hazard (as with radioactively contaminated asbestos, for example), the operator should include an assessment in the SWESC to demonstrate adequate protection against the non-radiological hazard presented by the radioactive substances exposed by human intrusion (see also Requirement R12). Any additional measures necessary, over and above those needed for radiological safety, should not exceed those that would be expected if the hazardous material were not radioactive.	Correction to reference to Requirement 12. Additional text limits measures required.
The Agencies recognise the need to correct the cross reference from R11 to R12. However, the additional text does not provide a suitable qualification. The Agencies consider that both the radiological and non-radiological hazards associated with radioactive waste may influence the suitability of such waste to remain on a site in a particular configuration. The addition of the proposed text is confusing here as this topic is address more fully under R12. Further, it would be unnecessary restrictive to limit “measures” to those used for directive waste as specified in the landfill Directive [which is the implication of the additional text] as that could preclude the use of different but more appropriate and proportionate measures				

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for radioactive waste]				
3	5.3.52	The operator should also carry out assessments to show that the consequential effects of human intrusion on non-human species are acceptable (see also Requirement R10).	The operator should also carry out assessments to show that the consequential effects of human intrusion on non-human species are acceptable (see also Requirement R11).	Correction to reference to Requirement 11.
The Agencies recognise the need to correct the cross reference from R10 to R11.				
3	5.4.2	There are nationally acceptable standards for managing hazardous substances.		There are standards for the use of hazardous substances but there are no nationally agreed standards for managing toxic substances in the ground (those of most concern in this context) or for substances with other hazardous properties. Nor is there an agreed level of protection relating to disposal except through facility design criteria.
The Agencies agree that further clarification of how to address the non-radiological hazards associated with radioactive waste would be useful. In particular how to address compliance with the groundwater directive 2006. In addition the provision of guidance regarding the acceptability of levels of non-radiological contamination in the environment would be desirable.				
3	5.4.7-5.4.8	…appropriate studies… …sufficient detail…		The environment agencies have revised their guidance on site characterisation since the NS-GRA and have generated a list of

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				needs which could be very expensive for operators to fulfil, and for the agencies to assess. Further information on what would be "sufficient detail" is needed if this guidance is to be applied in cases where information is limited.
The Agencies consider that what constitutes "sufficient detail" needs to be considered in the context of the SWESC (see para 5.4.7) as such the answer to this question may vary widely. The list provided in paragraph 5.4.8 is simply a statement of the things that need to be considered in developing a site characterisation plan.				
3	5.4.9	The site characterisation programme will also need to gather sufficient information to provide estimates of background radioactivity present at the site. This will include radioactivity of natural origin, together with that of human origin such as from weapons testing and from any local or remote nuclear accidents.	The site characterisation programme will also need to gather sufficient information to provide estimates of background radioactivity present at the site. This will include radioactivity of natural origin, together with that of human origin such as from weapons testing, from historic authorised discharges, and from any local or remote nuclear accidents.	For consistency with statutory guidance on radioactive waste.
The Agencies agree that clarification in this area would be useful, reference to existing guidance in the text is likely to be part of revised text to address this matter. We will ensure that he following reference in included in the final document "Guidance on the scope of and exemptions from the radioactive substances legislation in the UK. Guidance Document September 2011 Version 1.0." (see Paragraph 2.39.)				
3	5.4.15	…and an approach to confirming any apparently positive results to avoid inappropriate action being taken in the		This is welcome but is difficult. Clear guidance on an appropriate methodology to be applied by operators and agencies would

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		event of a false positive observation.		be welcome.
We recognise the desire to have such additional guidance, however we feel that inclusion in the GRR guidance would be overly detailed given the intent of the document. We are aware of some existing guidance (e.g. NIGLQ NICoP for Routine Water Quality Monitoring, EA guidance on monitoring of landfill leachate, groundwater and surface water (LFTGN02), EA guidance on environmental radiological monitoring (TGN02), however we are conscious that these do not provide a complete methodology. We will investigate whether there is alternative existing guidance that we can make reference to.				
4	Req R8			The concept of human intrusion as set out in the NS-GRA works well for repositories. Without some change in the definition, we are unclear that the concept (as currently defined) works for others sorts of in-situ contamination. This is because a barrier is well defined in the case of a repository, but it is less clear what may reasonably be considered a barrier in the case of contaminated land (and whether it would also be a barrier for a co-located disposal facility).
The Agencies understand the issue raised here and we will look at modifying the text to provide greater clarity.				
4	Reqs R3, R7 & Ch 6			We feel that it might help if it were clarified that contaminated ground and groundwater, whilst not waste, still contribute to the dose/risk from the site calculated in the SWESC. Hence the total dose, including the dose from ground and groundwater has to

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				meet criteria for the site reference state.
The Agencies agree with this comment and acknowledge that this point could be made clearer in the guidance with some simple modifications to the text to explicitly draw this fact to the attention of the reader. The suggested sections of the report for such text to be included also seem reasonable.				
4	Req R4 & Ch 7			We feel that it might help if it were clarified that contaminated ground and groundwater, whilst not waste, still contribute to the dose/risk from the site calculated in the SWESC. Hence the total dose, including the dose from ground and groundwater has to meet criteria for the site reference state.
The Agencies agree with this comment and acknowledge that this point could be made clearer in the guidance with some simple modifications to the text to explicitly draw this fact to the attention of the reader. The suggested sections of the report for such text to be included also seem reasonable.				
5	5.2.13	In addition, the SWESC should demonstrate that people and the environment will be adequately protected while work on site involving radioactive substances is still continuing.		We assume that the term 'people' refers to the public within this paragraph, rather than the workforce. If this is the case, it may be preferable to state this, to avoid an operator including extensive detail within the SWESC on radiological protection matters.
The assumption made in the comment is correct. Clarification that people means the public and not workers during the period of RSR will be included in the document.				
5	5.2.19	We expect the operator to assess, plan and begin to undertake the work necessary to bring the site into a		This paragraph is in the context of Requirement R4 to 'provide a waste management plan to set out the approach to

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		condition that meets the other requirements in this chapter. This should commence as soon as practicable during the operational phase of a nuclear site.		achieving release of the site from radioactive substances regulation'. Refer to responses for 3.4.1 and 3.4.2 above. We would agree with the inference here that there are benefits in early preparation and planning. However, the term 'as soon as practicable' is ambiguous and therefore, the expectations are unclear. For operational nuclear sites, it may be more appropriate and beneficial for the guidance to set out indicative timescales for such sites to prepare an environmental safety strategy (as detailed in 6.2.2), and then the more detailed SWESC and WMP.
The Agencies understand the point raised here but believe our intention has been misunderstood, we will continue to seek early WMPs and SWESCs. However, given this misunderstanding we need to provide some clarification to explain that the WMP and SWESC are living documents that can start simple and increase in complexity with time. We need to consider how the text should be modified to ensure that we clearly make this point.				
5	5.2.28	The operator needs to demonstrate to us that, throughout the changes on site leading towards release from RSR, its organisation will remain fully capable of assuring environmental safety by implementing a management system that includes effective leadership, proper arrangements for policy and decision making, a suitable range of competencies, provision of sufficient		It should be stated that this requirement will be met by conditions of the RSR permit itself and also by site licence conditions (e.g. License Condition 36).

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		resources, a commitment to continuous learning and proper arrangements for succession planning and knowledge and records management.		
The Agencies agree that reference to the fact that, where there is an extant authorisation, a condition that addresses this requirement will already exist would be useful. The Agencies will develop some suitable text to provide this clarification.				
5	5.3.1	During the period of radioactive substances regulation the effective dose to a representative member of the critical group from the whole site should not exceed a source-related dose constraint and a site-related dose constraint.	During the period of radioactive substances regulation the effective dose to a representative person from the whole site should not exceed a source-related dose constraint and a site-related dose constraint.	The term 'average member of the critical group' has been superseded by the term 'representative person'. The original text confuses these two terms. The document: 'Radiological Monitoring Technical Guidance Note 2. Environmental Radiological Monitoring' should be cited for this.
The Agencies agree that this terminology should be updated to reflect the ICRP recommendations in publication 103 and 101. However, the suggested form of text could be confusing and we propose to adopt the following: *"During the period of radioactive substances regulation the effective dose, from the whole site, to a representative person should not exceed a source-related dose constraint and a site-related dose constraint."*				
5	5.3.6	The operator should carry out decommissioning, clean-up and radioactive waste disposal in accordance with a WMP, which the operator has determined beforehand. The WMP should be consistent with the SWESC. The SWESC should demonstrate conformity with the source constraint and		The closing sentence of Paragraph 5.3.5 states: 'It [*the site-related dose constraint*] also applies irrespective of whether different sources on the site are operated by the same or different organisations'. How does the SWESC apply to a site consisting of sources operated by different organisations? Similarly, what are the

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		the site constraint both in the present and looking forward through the envisaged lifetime of the permit.		operators responsibilities over contamination arising from an adjacent operators facility? More generally, a number of sites across the UK are co-located and the guidance would benefit from more detail on the management of the SWESC and WMP in this context.
The Agencies recognise that there are some challenges to managing the decommissioning of sites where there are multiple tenants and/or adjacent sites present. However, we do not anticipate that more detailed guidance will be helpful in this area given that site specific circumstances will be very important.				
5	5.3.7	The permit will include limits on operational discharges and disposals. During the lifetime of the permit…	The permit will include limits on operational discharges. During the lifetime of the permit…	Current regulatory policy (both EA and SEPA) is to not set limits on disposals (i.e. solid waste) but to ensure that disposals are made to a facility permitted to receive them, focussing on the suitability of such a facility to manage the waste.
The Agencies agree that this is confusing; we will review the text at paragraph 5.3.7 to address this issue.				
5	5.3.12	…(i.e. when the estimated annual effective dose is less than 100 mSv…[millisievert]	…(i.e. when the estimated annual effective dose is less than 100 µSv…[microsievert]	We assume that the intention is not to set standards against a dose level two orders of magnitude higher than the current public dose limit and that this is most likely a typographical error. Clarification is requested on this point.
The Agencies have not made a mistake here the value of 100 mSv is correct. The value of 100 mSv is taken directly from the HPA reference quoted				

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in the text and represent the limit up to which the *"linear no threshold"* LNT model remains valid. It does not represent at dose limit for regulatory purposes but is an additional check that numerical models may need to undertake to confirm their validity in situations where low probability events are being investigated.				
5	5.3.18	In cases where a hazard remaining on or adjacent to a site warrants a detailed assessment of the risk…		The guidance would benefit from some detail on what criteria might apply in order to decide if a particular hazard warrants 'detailed assessment'.
The Agencies do not intend to provide additional guidance in this area. Risk assessments should be carried out by suitably qualified personnel who will have detailed knowledge of the process and will be aware of the many detailed guidance documents that address this topic.				
5	5.3.27	If two or more separate nuclear sites present significant risks to the same potentially exposed groups…		It is not clear how the responsibility for a risk combined across 2 or more operators might be addressed. Given the number of collocated nuclear sites across the UK further guidance on such matters would be beneficial.
The Agencies do not intend to provide more detailed guidance in this area. The issue raised is site specific and will need to be dealt with on a site specific basis.				
5	5.3.31	…The operator should, however, consider and implement any practicable measures that might reduce the chance of its [human intrusion] happening.		This might be interpreted as a requirement to apply BAT, which should not be applicable if the site is released from radioactive substances regulation.
The Agencies require optimisation (BAT) when bringing a site to its reference state. This means that any work done during decommissioning (under the authorisation) will need to set out the optimisation arguments including any work, such as providing extra cover over a disposal facility, that might reduce the probability of a future human intrusion event; which would by definition be after the site is released from RSR. As you can see the actual				

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optimisation activity will have been undertaken while still under RSR.				
5	5.3.31	The assessed effective dose to any person during and after the assumed intrusion should not exceed a dose guidance level in the range of around 3 mSv/year [millisieverts per year] to around 20 mSv/year [millisieverts per year].		As for Paragraph 5.3.12, we assume that dose guidance levels should be stated in µSv/year [microsieverts per year] and that this is most likely a typographical error.
The Agencies have not made a mistake here the dose values are correct. However, we recognise that we need to improve our communication of the human intrusion requirement. We intend to emphasis the fact that these values are a ***surrogate for risk*** and hence represent the maximum dose that any individual might be exposed to only if a low probability event were to occur in the far future..				
5	5.3.32	… range of around 3 mSv/year [millisieverts per year] to around 20 mSv/year [millisieverts per year]…		As for Paragraphs 5.3.12 and 5.3.31, we assume that these numbers should be stated in µSv/year [microsieverts per year] and that this is most likely a typographical error.
The Agencies have not made a mistake here see above for more details.				
5	5.3.35	The operator should also carry out assessments to show that the consequential effects of human intrusion on non-human species are acceptable.		It should be noted that a single system is not yet available for dose impact on non-human species. The ERICA model does not yet address non-depositing radionuclides and those tools that do are not compatible with ERICA, so a single assessment of risk is not possible.

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The Agencies do not specify a specific model to undertake this assessment. It is possible to make such an assessment and we leave it to the operators to find the most appropriate tools for undertaking this work.				
5	5.3.38	…around 3 mSv/year to around 20 mSv/year…		As for Paragraphs 5.3.12, 5.3.31 and 5.3.32, we assume that dose guidance levels should be stated in µSv/year [microsieverts per year] and that this is most likely a typographical error.
The Agencies have not made a mistake here see above for more details.				
5	5.3.41	Measures to reduce the likelihood of human intrusion		As for Paragraph 5.3.31, this might be interpreted as a requirement to apply BAT, which should not be applicable if the site is released from radioactive substances regulation.
As above. The Agencies require operators to apply optimisation when bringing a site to its reference state. This means that any work done during decommissioning (under the authorisation) will need to set out the optimisation arguments including any work, such as providing extra cover over a disposal facility, that might reduce the probability of a future human intrusion event. Which, would by definition be after the site is released from RSR. The actual optimisation activity will have been undertaken while still under RSR.				
5	5.3.45	…and demonstrate that these [radiation doses received by non-human organisms] are not at a level liable to cause significant harm…		As for Paragraph 5.3.35, it should be noted that a single system is not yet available for dose impact on non-human species. The ERICA model does not yet address non-depositing radionuclides and those tools that do are not compatible with ERICA, so a single assessment of risk is not possible.

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The Agencies do not specify a specific model to undertake this assessment. It is possible to make such an assessment and we leave it to the operators to find the most appropriate tools for undertaking this work.				
5	5.3.50	For many substances presenting some degree of radiological hazard that might be left on a former nuclear site, human intrusion after release of a site from RSR and any period of subsequent control is likely to result in doses well below the dose guidance levels. In such cases, we would look for any possible proportionate measures for reducing the likelihood of intrusion.		It is not clear what is implied here. It could be interpreted that an operator has already 'de-risked' the site to allow release from RSR but additional measures and application of BAT are then sought to reduce likelihood of intrusion. Further clarification is requested in this regard.
The Agencies recognise that paragraphs 5.3.48 to 5.3.50 could be made clearer. However, the Agencies are arguing that where there are dose consequences close to the dose guidance levels then additional measures may be required even if their effectiveness cannot be quantified.				
5	5.3.62	…around 3 mSv/year to around 20 mSv/year…		As for Paragraphs 5.3.12, 5.3.31, 5.3.32 and 5.3.38, we assume that these numbers should be stated in µSv/year [microsieverts per year] and that this is most likely a typographical error.
The Agencies have not made a mistake here see above for more details.				
5	5.4.1	The operator should bring the site to a condition at which it can be released from radioactive substances regulation, through a process that will protect people and the environment against any non-		We understand this statement to mean that a situation could arise where a site is not released from radioactive substances regulation on the basis that radiological hazards no longer remain but associated

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		radiological hazards associated with the radiological hazards…		non-radiological hazards do. Under current legislation it is not clear whether such a situation would be 'ultra vires'. Further clarification is requested on this point. More generally, the role of non-radioactive contaminants is not consistently addressed through the draft guidance.
The Agencies regulate "radioactive waste" under RSR to ensure that the public are adequately protected from all the hazards posed by that waste weather those hazards are radiological chemical or physical. The non-radiological hazards posed by "radioactive waste" are therefore regulated by the Agencies under RSR and we require any risk assessment to take these into account. We recognise that the guidance could be improved in this area and will look at providing some amendments and/or additions to address this.				
6	R2, 5.2.5 - 6			Our particular interest is in R2. We welcome the commitment to engage with the planning authority and the local community. It is recommended that wider engagement is required with all local authorities, including two tier authorities, as this is not solely a local planning authority matter. The consultation concerns the whole community with implications on economic development, social and environmental implications of decisions taken on site remediation. Any final guidance also needs to be aware of potential changes in local government form and structure and should be worded so as to remain relevant even if the exact type and functions of councils alter over time.

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The Agencies welcome the support for Requirement R2. While we understand the thrust of the comment we consider that our existing text is inclusive enough to allow for all relevant stakeholders to be engaged in the process we therefore do not intend to change the guidance in this area.				
11	5.3.13			The cross reference in paragraph 5.3.13 appears to be wrong.
The Agencies recognise this incorrect cross reference and will make the required change in the final guidance document. Reference should be *"paragraphs 6.3.15-17of the near-surface GRA (EA et al 2009)"*.				
11	5.3.51			3.6.1 and 5.3.51 The guidance requires that the effects of human intrusion should be assessed with respect to chemotoxic contaminants. We note that such impacts do not require assessment for wastes disposed to landfill and therefore this goes beyond the requirement to ensure protection that is no less stringent (see Paragraph 5.4.2).
The legislation relating to the disposal of non-radiological hazardous substances are prescriptive with respect to the nature of the facilities that such waste can be disposed in. Non-radiological hazards of radioactive waste therefore need to be investigated to ensure that they are suitable for management by on-site disposal. In other words for decommissioning sites the suitability of radioactive waste to be disposed on-site must be investigated both for its radiological properties and it non-radiological hazardous properties.				
11	5.3.74			We support the sentiment set out in paragraph 5.3.74 that there should be regard to the extent to which it is proportionate to remediate radioactively contaminated land and groundwater.

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The Agencies welcome the support for the position expressed here.				
11	5.3.82			Paragraph 5.3.82 requires a written record of optimisation decisions. We note that this may not be available for decisions taken in the past when standards and approaches may have been different.
The Agencies recognise that past decisions may not always be fully documented. However, our guidance is focused on dealing with the current situation and determining the best way of managing the wastes that exist on a site or might arise in the remediation of contaminated land. The focus of the documentation of the optimisation process to get to *"the end of all planned work associated with radioactive substances"*.				
12	5.3.31	The operator should assess the potential consequences of human intrusion into any part of the site after the site reference state has been reached (that is, once the site is available for unrestricted use) on the basis that it is likely to occur.	Further clarification sought - see Comments.	This is inconsistent with 4.3.5.
The Agencies do not believe this is inconsistent with paragraph 4.3.5. It is important to note that assessments of a site in the future after the site reference state has been achieved are prospective assessment that are provided as evidence of the suitability of the site to be released.				
12	5.5.8 Should be 5.3.8	After release from radioactive substances regulation, the assessed risk from the remaining radiological hazards to a person representative of those at greatest risk…	Further clarification sought - see Comments.	Is it intended that the commencement of application of R7 (risk guidance level) and R8 (human intrusion dose guidance levels) may differ? This is not the case in the NS-GRA.
The Agencies have allowed for the possibility that these times may differ; this is illustrated in figure 4. However, it should be noted that where no				

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other body, in the long term, is identified to take on the control of the site it would continue to be the responsibility of the Agencies and hence release from RSR and the site reference state being achieved would be coincident.				
13	R3			As far as I am aware, SWESC is a term used only by SEPA and mainly for Dounreay. Requiring each UK nuclear site to have an SWESC that covers the period before release from RSR, as well as the period afterwards, is an unwarranted imposition and is beyond the scope of a guidance document. Any requirement for an SWESC while the site is still regulated can only be imposed through the environmental permit / authorisation. Further, in England and Wales the term ESC is only used for near-surface and geological disposal facilities (e.g. the LLWR environmental permit refers to its ESC). I think that this requirement should only state that the operator should demonstrate that people and the environment will be adequately protected after the site is released from RSR. The accompanying text should be amended to be much less prescriptive about the contents of such a demonstration. It should give more emphasis to the point made in paras 5.2.14 and 8.3.3 about not necessarily producing specific documentation.

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The Agencies recognise that regulation of nuclear sites is undertaken via an authorisation or permit and will of course amend these as part of the implementation of this new guidance. The Agencies will not be amending the text under requirement R3 to reflect the views expressed here.				
13	R4			This requirement is too general and applies to the period before release from RSR. For nuclear sites in England, it seems to duplicate the Environment Agency requirements for each site to have "radioactive waste management arrangements" and a "radioactive substances strategy". For NDA sites, it duplicates the requirement for an integrated waste strategy. There is also the potential for overlap with ONR requirements for a decommissioning strategy and plan, a radioactive waste management strategy and a strategy for dealing with radioactively contaminated land. I think that this requirement should be replaced by one that is specific to on-site disposals (in situ, in a waste disposal facility, or where waste is used for a purpose such as void filling or backfilling) and to their release from RSR.
The Agencies recognise that operators have several different demands placed on them already regarding the need to set out their plans for the management of radioactive waste. In producing a WMP we do not expect an operator to repeat information that already exists when developing their WMP, suitable referencing of existing documentation would appropriate. We do make reference to this at paragraph 8.3.3 but will consider including text elsewhere explaining our position more fully.				
13	R5			This requirement is general to

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				decommissioning and clean up. It applies primarily to the period before release from RSR and is not needed in the GRR document.
The Agencies disagree with this opinion we intend to retain this requirement for completeness.				
13	R6			This requirement is entirely about the period of RSR. It is dealt with in other guidance and should not be included in the GRR document.
The Agencies disagree with this opinion we intend to retain this requirement to ensure that readers have an understanding of how the numerical requirements placed on them vary with time and need to be considered when planning decommissioning and clean-up work.				
13	R10			The text accompanying this requirement should mention BAT / BPM (see comment on Principle 2) and should be made specific to release from RSR. At present it contains too much material that applies mainly when the site is subject to RSR.
The Agencies have chosen to use the term optimisation in this guidance given the different approaches to this across the UK and we are content that this terminology provides the best means of communicating these ideas. With respect to the application of optimisation it is clear that any action to optimise an outcome must be undertaken while there are activities being undertaken on a site. The process of achieving an optimised site reference state therefore requires that actions are undertaken during the period of RSR to ensure the correct outcome after all planed work has been completed.				

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13	R11			This requirement needs rewording to omit any reference to the period before release from RSR.
The Agencies disagree with this opinion and will continue to protect the environment both before and after released from RSR.				
13	R13			This requirement should be more specific to release from RSR. Characterisation and monitoring when the site is being decommissioned and is subject to RSR is covered (or should be covered) in other guidance from the Agencies.
The Agencies disagree with this opinion. This guidance applies during the full lifecycle of a nuclear facility, new facilities will need to ensure adequate characterisation of their sites prior to any radioactivity being present on the site and operating facilities will need to characterise any incidents that may happen.				
14	5.2.11	It is unlikely that the environment agencies would accept a claim for a period of restricted use lasting longer than 300 years.		Whilst giving an indication of current thinking, a 300 year limitation might prove to be unhelpfully rigid when considering the optimised approach for some facilities. As such, more general guidance might be appropriate.
The Agencies are content with the justification of the 300 year time limit for the exercise of controls over the disposal of radioactive waste. This limit is based on arguments for the continued duration of organisations through history and societal stability over such timeframes.				
14	5.2.13	In addition, the SWESC should demonstrate that people and the environment will be adequately protected		We assume that the term ‘people’ within this paragraph refers to the off-site public, rather than the onsite workforce (whether ionising

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		while work on site involving radioactive substances is still continuing.		radiation workers or not). To avoid undue focus on IRRs and workforce radiation protection, it would be useful if the guidance clarified this.
The assumption made in the comment is correct. Clarification that people means the public and not workers during the period of RSR will be included in the document.				
14	5.2.28	The operator needs to demonstrate to us that, throughout the changes on site leading towards release from RSR, its organisation will remain fully capable of assuring environmental safety by implementing a management system that includes effective leadership, proper arrangements for policy and decision making, a suitable range of competencies, provision of sufficient resources, a commitment to continuous learning and proper arrangements for succession planning and knowledge and records management.		Could this state that the requirement can be met by operators' arrangements addressing conditions of the RSR permit/authorisation and/or by site licence conditions (e.g. Licence Condition 36)?
The Agencies agree that the guidance could be improved by making reference to the fact that the existing authorisation/permit already addresses this point and that it is included in the guidance for completeness as well as to inform prospective new nuclear site operators (note this guidance applies for the full lifecycle of a nuclear facility).				
14	5.3.1	During the period of radioactive substances regulation the effective dose to a representative member of the critical	During the period of radioactive substances regulation the effective dose to a representative person from the	We recognise that the original text (i.e. the key wording of GRR Requirement R6) is the same as the equivalent NS-GRA

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		group from the whole site should not exceed a source-related dose constraint and a site-related dose constraint.	whole site should not exceed a source-related dose constraint and a site-related dose constraint.	Requirement R5. However, the term 'average member of the critical group' has been superseded by the term 'representative person'. The document: 'Radiological Monitoring Technical Guidance Note 2. Environmental Radiological Monitoring' should be cited for this.
The Agencies agree that this terminology should be updated to reflect the ICRP recommendations in publication 103 and 101. However, the suggested form of text could be confusing and we propose to adopt the following: *"During the period of radioactive substances regulation the effective dose, from the whole site, to a representative person should not exceed a source-related dose constraint and a site-related dose constraint."*				
14	5.3.5	For comparison with the site-related dose constraint, the assessment of effective dose should take into account radiation from current discharges from the site as a whole. The site-related dose constraint applies to the aggregate exposure from a number of sources with contiguous boundaries at a single location, i.e. the sources may be on the same site (including tenants) or on adjoining sites (e.g. A and B nuclear power stations). It applies where some of the sources are undergoing decommissioning and clean-up while others remain operational. It also applies irrespective of whether different sources on the site are operated		For clarity, it would be useful if this paragraph explicitly stated that direct radiation from sources should not be considered in assessments set against the site-related dose constraint.

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		by the same or different organisations.		
The Agencies do not agree with this comment. Where sources on a site give rise to a direct radiation impact to members of the public off-site they will need to be taken into account. In addition any direct radiation exposures due to the migration of radionuclides from the site or via authorised discharges should also be considered. [see Ref: "Principles of Prospective Dose Assessment" para 2.4.5]				
14	5.3.6	The operator should carry out decommissioning, clean-up and radioactive waste disposal in accordance with a WMP, which the operator has determined beforehand. The WMP should be consistent with the SWESC. The SWESC should demonstrate conformity with the source constraint and the site constraint both in the present and looking forward through the envisaged lifetime of the permit.		A number of sites across the UK are co-located, but often under separate ownership. How does the SWESC apply to a site consisting of sources operated by different organisations? What are the responsibilities of one operator relating to contamination arising from an adjacent operators facility? Further guidance would be valued.
The Agencies recognise that there are some challenges to managing the decommissioning of sites where there are multiple tenants and/or adjacent sites present. While this offers some challenges we do not anticipate that more detailed guidance will be helpful in this area given that site specific circumstances will be very important.				
14	5.3.7	…monitor and assess radioactive discharges from the site and levels of radioactivity in the environment;		As stated in para 5.4.12, it would be useful to have a statement here about the need for monitoring to be proportionate to the possible hazard. For instance, monitoring needs of a site in some form of Care and Maintenance or Interim State / Interim End State should be much less for one in operation or an active phase of

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				decommissioning.
The Agencies recognise the point raised in this comment and will consider modifying the guidance to provide greater clarification regarding the expectation that all monitoring should be proportionate.				
14	5.3.35	The operator should also carry out assessments to show that the consequential effects of human intrusion on non-human species are acceptable.		A number of assessment benchmarks in terms of biota dose exist, but there is no international consensus on what dose level is acceptance and there is no clear guidance on spatial averaging that should be applied in assessment of non-human biota dose. Hence, sign-posting to appropriate guidance would be valued.
The Agencies recognise the current limitations with respect to guidance in this area. We will review this text and consider including appropriate references or cross referencing to other sections of the GRR such as Requirement R11.				
14	5.3.45	…and demonstrate that these [radiation doses received by non-human organisms] are not at a level liable to cause significant harm…		Please refer to response for Paragraph 5.3.35 above.
The Agencies recognise the current limitations as stated above, however, in this instance we have included a cross reference to Requirement R11 [Note the cross reference needs correcting as is currently says R10]				
14	5.3.50	For many substances presenting some degree of radiological hazard that might be left on a former nuclear site, human intrusion after release of a site from RSR and any period of subsequent control is	In such cases, we would look for proportionate measures for reducing the likelihood of intrusion.	The wording “proportionate measures” is suggested as more appropriate

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		likely to result in doses well below the dose guidance levels. In such cases, we would look for any possible proportionate measures for reducing the likelihood of intrusion.		
The Agencies do not believe that there is an unreasonable extension of regulatory control implied by the original text. The suggested alternative text does not appear to materially change the sense of the sentence but merely reduces the emphasis placed on the need to look for proportionate measures to reduce the likelihood of intrusion. The Agencies recognise that paragraphs 5.3.48 to 5.3.50 could be made clearer. However, the Agencies are arguing that where there are dose consequences close to the dose guidance levels then additional measures may be required even if their effectiveness cannot be quantified.				
14	5.4.2	There are nationally acceptable standards for managing hazardous substances.		There are standards for the use of hazardous substances and for air and water quality. In terms of land quality and managing substances in the ground there are only 'guideline' values. It would be useful for the guidance to provide some sign-posting to what are appropriate controls to consider.
The Agencies agree that it might be useful to provide some further guidance regarding the standards for non-radiological hazardous substances and will investigate possible references that could be included.				
16	R7			3. Radiological Hazard from sites released from RSR. NFLA note that this consultation document focuses on the 0.3mSv and 0.5mSv dose constraint figures which apply to sites which are still controlled under radioactive

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				substances regulation. Then after release from RSR the proposed Guidance focuses on a risk factor rather than a dose figure. The assessed risk from the remaining radiological hazards to a person representative of those at greatest risk should be consistent with a risk guidance level of 10-6 per year (that is, a risk of death of 1 in a million per year due to exposure to ionising radiation). The Guidance uses the term “risk guidance level” to indicate the standard of environmental safety being sought, but “does not suggest that there is an absolute requirement for the stated level to be met.” The environment agencies Guidance on Requirements for Authorisation (GRA) on Near Surface Disposal Facilities for Solid Radioactive Waste (Near Surface GRA) says that a risk level of 10-6 per year is equivalent to a calculated dose of around 0.02mSv/yr, where the probability of receiving the dose is one. For situations where the probability of receiving a dose is less than one, doses could be greater. (2) NFLA believes this level of flexibility is unacceptable. The July 1995 White Paper on Radioactive Waste Management Policy (Cm 2919) says

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				a risk of 10-6 per year is equivalent to an individual receiving a dose of 0.03mSv per year over his or her lifetime. The Government at the time, therefore, decided to err on the side of caution and said that if exposures are below 0.02mSv/year then regulators should not seek to secure further reductions “provided they are satisfied that the operator is using the best practicable means to limit discharges.” The HSE Criterion for De-Licensing Nuclear Sites (2005) says the Basic Safety Standards Directive (Euratom 96/29) allows member states to exempt a practice where appropriate and without further consideration if doses to members of the public are of the order of 0.01mSv or less per year. HSE is of the view that this dose limit broadly equates to a risk of 10-6 ‘as well as being consistent with other legislation and international advice relating to the radiological protection of the public. (3) Basing whether or not to release a site from RSR on the probability of an exposed person receiving a certain level of dose is going to rely on uncertain environmental models. The NFLA view is that this leaves too much open to interpretation. NFLA

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				prefers the HSE view that 0.01mSv/yr broadly equates to a risk of 10-6 and would therefore expect the dose to the most exposed person after a site has been removed from radioactive substances regulation to be at least as low as 0.01mSv/yr.
The Agencies do not agree with the analysis presented in this review comment. We refer to the HSE Criterion for Delicensing Nuclear sites (2005) which advocates the use of a risk based assessment criteria for no danger that is identical to our risk guidance level of 10^{-6}. Risk based approaches are used extensively for the protection of people and the environment and are recognised as the modern standard. Risk based approaches enable the regulation of a diverse range of different risks that need to be balanced against each other. Risk based approaches provide flexibility to respond to site specific issues and avoid the pitfall of simple compliance systems where some risks can be completely missed.				
16	R8			Near Surface Disposal and Unrestricted Use NFLA note that the proposed Guidance lists 14 requirements for the operator to demonstrate that decommissioning and clean-up relating to radioactive substances, and any radioactivity remaining on a nuclear site after completion of the work, will not present an unacceptable risk to people and the environment, both during and after the period of radioactive substance regulation. These are similar to the 14 requirements in the Near Surface GRA. Comparing the Near Surface GRA with this latest consultation document – the GRR – it is not clear where the line is to be drawn

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				between a near-surface disposal site and a de-licensed nuclear site. If it is proposed that a site where nuclear waste is buried could be part of a site where unrestricted use is allowed, this would be opposed. Just because environmental models suggest that the risk from buried waste is consistent with a risk guidance level of 10-6 per year (that is, a risk of death of 1 in a million per year due to exposure to ionising radiation) – because the probability of doses higher than 0.01-0.02mSv/yr is low, does not mean that unrestricted use should be allowed. Both the Near Surface GRA and the GRR consultation both say, in relation to human intrusion: “The assessed effective dose to any person during and after the assumed intrusion should not exceed a dose guidance level in the range of around 3mSv/year to around 20mSv/year.” There should be a clear distinction between a de-licensed nuclear site from which the most exposed person is likely to receive a maximum dose in the region of 0.01mSv/yr to 0.02mSv/yr and a near surface nuclear dump from which the most exposed person might receive up to 20mSv/yr if at some point in the future buried waste is breached

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				by someone without any prior knowledge of the site. It is the NFLA view that a clear distinction should be made between a de-licensed site which can be removed from radioactive substances regulation, and a near surface disposal site which should remain within radioactive substances regulation as long as such regulations exist. A de-licensed site should not be something capable of administering doses of up to 20mSv/yr. There should be minimal opportunity for doses of over 0.01 – 0.02mSv/yr even with large errors and uncertainties in the environmental models used.
The Agencies do not agree with the analysis presented in this comment. The use of a risk based approach means that it is possible that in the future doses that might be received by future occupiers of a site will be above 0.02 mSv/yr as stated in the Near-surface GRA. The addition of the human intrusion dose guidance level means that operators will be constrained to ensure that possible low probability future scenarios will not give rise to doses greater than 20 mSv/yr. With respect to the our guidance for release of decommissioning site where waste has been managed by on-site disposal and our guidance for dedicated disposal facilities not on a nuclear site the agencies have exactly the same objective to protect the public from the effects of ionising radiation. Both the GRA and the GRR require the assessment of a site where radioactive waste has been disposed to demonstrate that it will be safe once released from regulatory control. For decommissioning sites where waste has been disposed regulation might continue for that site (or part of the site) for up to 300 years to ensure the public are adequate protected.				
17	R2			Our particular interest is in R2. We welcome the commitment to engage with the planning authority and the local community. We

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				would suggest that engagement should not just be with the local planning authority but with all local authorities in an area e.g. both the District and County authority in two tier areas. Local authority interest in sites is not just restricted to planning matters but also to the economic development, social and environmental implications of decisions taken on site remediation. Any final guidance also needs to be aware of potential changes in local government form and structure and worded so as to remain relevant even if the exact type and functions of councils alter over time.
The Agencies welcome the support for our Requirement 2 for Engagement with local communities and others. We will review the wording to provide the future proofing suggested and consider how to make it more inclusive.				
18	5.3.31			ONR recommends that human intrusion should be treated as a low probability-high consequence event along the lines of the approach taken in the Numerical Targets section of ONR's Safety Assessment Principles. We note that the GRR proposes a human intrusion dose guidance level (HIDGL) of 3–20 mSv/year. We agree with the need to consider human intrusion in the GRR, as there is a risk of this type of event potentially occurring in the future. We

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				suggest that it is possible to assign probability values or ranges to the chance of intrusion. We also suggest that the GRR proposal to combine the likelihood and consequence of such a future event occurring, into a single dose guidance level of 3–20 mSv/year, has disadvantages in terms of perception. In ONR's view this is an example of a low probability-high consequence event for which the overall risk (taking likelihood into account) is low, and we would recommend instead that the GRR should take an approach similar to that taken in the Numerical Targets section of ONR's Safety Assessment Principles (SAPs). In our view the SAPs approach has a number of advantages, including: a. It does not seek to present the risk of an occurrence solely in terms of radiological dose, which in our view could be misleading. b. It would avoid the need to set a dose guidance level at a relatively high value of up to 20 mSv/year. c. It would avoid the potentially misleading impression that such a relatively high dose would recur on an annual basis, when it is more likely that intrusion would be a single event over a very long time period.

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				d. If the human intrusion dose guidance level of 3–20 mSv/year is retained in the guidance, we recommend that a clearer explanation of its derivation is provided.

The Agencies accept that the approach we have taken might present a challenge with respect to communication of the ideas presented in our guidance. However, after reviewing in some detail the approach set out in the ONR's SAP we have concluded that, it is not applicable to human intrusion, for a number of reasons which are set out below:

It is recognised internationally that there are two broad categories of exposure situations from radioactivity present in the ground i.e. (i) natural processes; and (ii) inadvertent human intrusion; and that these should be treated separately for radiological assessment purposes. The former are processes such as migration in groundwater and the latter are intrusion events such as people digging disposed radioactive waste. The international background to this is explained in chapter 1 of "RCE-8: Radiological protection objectives for the land based disposal of solid radioactive waste" advice published in 2009 by the Health Protection Agency (HPA, now Public Health England (PHE)). Following this advice, the GRR adopts a risk guidance level of 10^{-6} per year for natural processes [R7] and dose guidance levels for intrusion of 3-20 mSv/yr [R8].

The issue of intrusion is explained in general in chapter 8 of the PHE's advice and the derivation by PHE of the 3-20 mSv/yr range is explained in particular at section 8.2. While the PHE advice was originally written for the disposal of waste in a disposal facility, we have discussed with PHE the applicability of these concepts to decommissioning nuclear sites where radioactivity, whether from authorised disposals or contamination, may remain in the ground at the cessation of clean-up activities. PHE advise us that the concepts in the 2009 advice remain valid for decommissioning nuclear sites.

Turning specifically to the themes raised by ONR in points the bullet point a., b., c. and d., the GRR closely follows the PHE advice, which recognises that the probability of inadvertent human intrusion into the near-surface environment is highly uncertain. Furthermore, measures to reduce the probability of such intrusion are only likely to delay, rather than prevent intrusion, and the assumption must be that intrusion will occur eventually. PHE advises that this necessary assumption emphasises the need to mitigate the consequences of intrusion after the site is no longer controlled with respect to radioactivity. This necessitates controls on the doses likely to be received, and the PHE advice explains the derivation of the range of dose guidance levels, intended to encompass short-term and long-term exposure situations. This approach provides a more certain level of protection of people in future, by capping the potential exposures to acceptable levels, than the approach recommended by ONR, which could allow much higher potential exposures.

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In summary we believe that we have followed recognised international and national approaches in distinguishing between exposures via natural process and inadvertent intrusion into buried radioactive waste, demonstrated by our adoption of the distinct guidance levels applicable to each. We will review the relevant text to see whether we can better explain our approach.				
18	5.3.8			We recognise that the GRR's risk guidance level (RGL) of 10^{-6} is very similar to the current delicensing criterion used by ONR. Our discussions with the agencies and PHE have identified a subtle but important difference between the two standards: the GRR approach does not require licensees to take account of an 'intrusion with full knowledge' scenario; whereas ONR's delicensing criterion considers the site being used in the future for any reasonably foreseeable purpose ('intrusion with full knowledge' is considered to be reasonably foreseeable).
The Agencies recognise that our risk guidance level aligns well with ONR's delicensing criterion and believe this allows for co-ordinated approaches to the eventual cessation of both of our systems of regulation for nuclear licensed sites. The risk guidance level of 10^{-6} is set out in Requirement R7, which is specific to exposure via natural processes and does not include intrusion, inadvertent or otherwise. As addressed above, inadvertent intrusion is treated as a discrete radiological exposure route under R8 with a separate range of dose guidance levels. Our guidance explicitly excludes deliberate intrusion with full knowledge of the presence of buried activity, given that such intrusion should fall under the regulatory controls applicable at the time, and hence it is neither appropriate nor necessary to specify targets or guidance levels for this. This is completely consistent with the PHE advice (HPA 2009) which, as referenced above, includes a full discussion of intentional and inadvertent intrusion in section 8.2.				
18	5.3.66			ONR recommends that greater emphasis is given to the need for optimisation in relation

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				to the proposed dose and risk guidance levels, and to the other institutional controls that would continue to apply
The Agencies recognise the centrality of optimisation in developing the WMP for a nuclear site and in consequence it is both a principle (P2) and requirement (R10) in our guidance. Nevertheless we will review our guidance to ensure it gives appropriate emphasis to the need for an operator to keep exposures as low as reasonably achievable. The agencies have published separate guidance on optimisation.				
19	5.3.1	the effective dose to a representative member of the critical group	the effective dose to a representative member of the more highly exposed individuals in the population	Reflects current ICRP terminology
The Agencies recognise that changes to the ICRP terminology have taken place and will consider reflecting these changes in our final published guidance				
19	5.3.12	For situations in which only stochastic effects of radiation exposure need to be considered (i.e. when the estimated annual effective dose is less than 100 mSv and the estimated equivalent dose to each tissue is below the relevant threshold for deterministic effects)	For situations in which only stochastic effects of radiation exposure need to be considered (i.e. when the estimated annual effective dose is less than 100 mSv and the estimated equivalent dose to each tissue is below the relevant threshold for tissue reactions)	Reflects current ICRP terminology and may be more understandable to general reader
The Agencies recognise that changes to the ICRP terminology have taken place and will consider reflecting these changes in our final published guidance				
19	5.3.12	For situations in which only stochastic effects of radiation exposure need to be	.. a risk coefficient of 0.06 per Sv should be used. The risk coefficient is only	This is to make clear that the risk coefficient should apply to whole populations and not

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		considered (i.e. when the estimated annual effective dose is less than 100 mSv and the estimated equivalent dose to each tissue is below the relevant threshold for deterministic effects), a risk coefficient of 0.06 per Sv should be used.	appropriate when considering large scale populations.	to individuals or population subgroups eg children
The Agencies understand the point being made and will consider adopting the suggested wording as a useful clarification.				
19	5.3.13	For further discussion see paragraphs 3.6.15-16 of the Near-Surface GRA.	Correct to 6.3.15 – 16	
The Agencies recognise this incorrect cross reference and will make the required change in the final guidance document. Reference should be *"paragraphs 6.3.15-17of the near-surface GRA (EA et al 2009)"*. **DUPLICATE**				
19	5.3.36	The operator will need to show that dose thresholds for severe deterministic injury to individual body tissues are unlikely to be exceeded as a result of human intrusion. Severe deterministic injury means injury that is directly attributable to the radiation exposure, that is irreversible in nature and that severely impairs health and/or the quality of life of that individual, for example, lung morbidity and early death.	The operator will need to show that dose thresholds for tissue reactions are unlikely to be exceeded as a result of human intrusion. Severe tissue reactions means injury that is directly attributable to the radiation exposure, that is irreversible in nature and that severely impairs health and/or the quality of life of that individual, for example, lung morbidity and early death.	Reflects current ICRP terminology. It may be useful to reference ICRP 118
The Agencies recognise that changes to the ICRP terminology have taken place and will consider reflecting these changes in our final published guidance				

Annex A6 Detailed responses to GRR Chapter 6

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3	6.2.12	We shall consider the SWESC against the principles and requirements of this document. Quantitative assessments are likely to be important to our consideration, but regulatory acceptance of the case will ultimately be based on judgement. The quantitative and qualitative assessments provided in the SWESC will aid the judgements we make.		Although this text mirrors that in the NS-GRA and has been applied effectively, it would be useful for the environment agencies to provide more detail about how such judgements will be made. With the anticipated lifespan of the SWESC there could otherwise be opportunities for inconsistencies and uncertainties in regulatory views to arise.
The key assessment for both operators and regulators is the optimisation assessment and identification of the preferred site-specific solution. There is considerable existing guidance on how such assessments should be undertaken. However these are aids to inform decision making that remains based on judgement. At the moment we do not see the need for further guidance.				
3	6.3.4	Where the radiological hazard presented by the waste warrants it, the developer/operator should provide a wide range of information relating to such indicators, for example: • assessments of the concentrations in the accessible environment of radionuclides released from the disposal system and comparison of these with naturally occurring levels of radioactivity	Where the radiological hazard presented by the waste warrants it, the developer/operator should provide a wide range of information relating to such indicators, for example: • assessments of radionuclide release characteristics from the waste; • assessments of the concentrations in the accessible environment of radionuclides released from the disposal	For (partial) consistency with the NS-GRA and because the rate of release from disposals such as concrete floor slabs may be an important element of the safety case.

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		in the environment;	system and comparison of these with naturally occurring levels of radioactivity in the environment;	
The agencies will make this change.				
3	6.3.17	… model validation.	… model verification and validation where feasible.	Validation and verification are different. It is possible to verify that a model is mathematically correct. However, validation (i.e. demonstrating that it is an adequately realistic representation of reality) of a model into the future, or at very low dose levels, is difficult or impossible, as acknowledged in 6.3.20.
The agencies recognise this issue and will review this text.				
5	6.2.10	It should be sufficiently comprehensive and robust to provide adequate confidence in the environmental safety of the site taking into account: the radiological and any associated non-radiological hazards that will remain on or adjacent to the site when all planned operations involving radioactive substances are complete.		This paragraph has implications for neighbouring nuclear power stations sites (e.g. Hunterston A and B). Operations involving radioactive substances at one site may be ongoing, whilst such operations may have been completed at the neighbouring site. It is recommended that the guidance reflect this possibility and emphasise that neighbouring operators should effectively communicate and cooperate as SWESCs and WMPs are

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				developed.
The Agencies recognise the issues raised here and will look to provide greater clarification in our guidance.				
5	6.2.20	The SWESC will provide an input to deriving site-specific regulatory limits…		We assume that the term 'regulatory limits' means 'permit limits'. If this is the case, we would like this to be stated explicitly.
The agencies will review this text to improve clarity.				
5	6.3.39	…the SWESC will need to demonstrate that an adequate standard of protection is achieved for any non-radiological hazards.	…the SWESC will need to demonstrate that an adequate standard of protection is achieved for any <u>associated</u> non-radiological hazards.	As for paragraph 5.4.1, we understand this statement to mean that a situation could arise where a site is not released from radioactive substances regulation on the basis that radiological hazards no longer remain but associated non-radiological hazards do. Under current legislation it is not clear whether such a situation would be 'ultra vires'. Further clarification is requested on this point. More generally, the role of non-radioactive contaminants is not consistently addressed through the draft guidance.
The agencies acknowledge the point. We will review this and related text to see whether this can be conveyed more clearly.				
11	6.3.34			A minor point but the paragraph would be improved by omitting _possible at the beginning of sentence two and in line four.

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The agencies will review this text.				
11	6.3.33			3.6.3 and 6.3.33 The guidance offered in relation to the groundwater directive is very limited. It is recognised that the required approach differs somewhat in different parts of the UK. However, this would be an opportunity to provide clear guidance or to clearly reference appropriate guidance.
The Agencies recognise that further clarification regarding the issues of groundwater protection might be useful. We will be considering how we might be able to provide greater clarity in this area; however, because the legislation is different in Scotland to the rest of the UK it is likely that this matter will be addressed by reference to other documents.				
14	6.2.13	The operator should maintain the SWESC in the light of factors such as developments at the site, new information, changes in legislation and Government policy, and should comprehensively review the SWESC no less frequently than every 10 years.		'Comprehensive review' may not be proportionate for a site in a quiescent state and wording such as 'appropriate review' may be more appropriate.
Although work on the site may have paused for a time, the site will continue to evolve, as will legislation, policy and guidance. It is not therefore unreasonable to require a comprehensive review no less frequently than every decade, even at quiescent sites.				
14	6.2.14	The operator will be responsible for developing and updating the SWESC at suitable intervals up to the release from		Clarification of the role of the SWESC when there are two or more co-located operators and one is released from RSR would be

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		RSR. The SWESC, including quantitative assessments, will need at each stage to be sufficiently detailed and comprehensive to inform and support the operator's decommissioning and clean-up programme in accordance with the waste management plan (WMP).		valued.
The agencies acknowledge this point may require greater explanation.				
14	6.2.21	ONR has indicated that the SWESC may provide a suitable location for the safety cases that organisation requires, provided that it can be clearly identified as such, and meets the requirements of ONR guidance.		We value the integrated approach between the environmental regulators and the ONR and would welcome clarification from ONR as to what defines whether a SWESC is a suitable location for an organisation's safety cases.
We recognise the importance of an integrated approach between the regulators of nuclear sites. This is a developing area of work, and the agencies hope to be able to provide greater clarity on this in the final published guidance.				
15	R14			Requirement 14, Preservation of knowledge and records:- a) As a general point we would support a statement that wherever possible the need for knowledge (which could imply what is individually known) should be engineered out such that

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				anything required is captured within the record set; b) Where reference is made to *material,* we think the term should be *records;* Phrases such as *"can pass on" "seeming to have"* and *"being prepared to accept"* lack clarity. We would welcome more definition e.g. "*must pass on"* etc. Can the requirements for a *"suitable organisation"* be defined? c) Why specifically provide material for lay-persons? We would have thought technical specialists should always be involved, who can interpret the records for lay-persons, to prevent misinterpretations; d) We are presuming that a site would not be released from radioactive substances regulation whilst there was an interim store for higher activity waste i.e. because disposal of waste from the site had not finished. Therefore, records

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				pertaining to waste packages are not part of the records here.
The agencies will review this text to see whether it can made clearer. We agree with point d) – any interim store for HAW would remain under both nuclear safety and radioactive substances regulation and HAW waste package records would not from part of the record set referred to in the GRR.				

Annex A7 Detailed responses to GRR Chapter 7

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
4	7.2.16			We think that there is a need for some additional clarity in relation to dealing with the in-situ burial of contaminated structures or material (as opposed to disposal in a repository). It is not clear what happens if there is compliance with the GRR risk criterion of one in a million (corresponding to a dose of 20 µSv y-1 if the exposure is certain to occur), but there is a small amount of radioactive contamination present that is above the out of scope levels (OOSL). If above the OOSL, then it needs a Permit but, if it meets GRR, the Permit can be revoked. So how does this work in practice? If waste meets the GRR, could it then be defined as no longer radioactive waste? To address this, it would be helpful if the definition of radioactive waste in Paragraph 7.2.16 also allowed for comparison with the risk/dose criterion used in the BSS to derive the OOSLs: 10 µSv y-1. Hence it could be worded something along the lines of 'above OOSLs or gives rise to risks above one in a million, the risk equivalent of the dose criterion used to derive the OOSLs'. By extension, it would be helpful to understand how to treat wastes

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				that are above OOSLs, but below exemption levels.
The agencies believe the position set out in the GRR is sufficiently clear. Radioactive waste is as defined in RSR. The legislation provides for exclusions and exemptions to support proportionate regulation. Disposal of any radioactive waste (except as exempted under RSR), even if marginally above out-of-scope levels, requires authorisation by the relevant agency - the agencies have no latitude to disapply any aspect of RSR. The fact that radioactive waste, lawfully disposed of, falls out of the definition of radioactive waste once a permit is revoked does not obviate the requirement for it to be disposed of in accordance with an authorisation under RSR. It should be remembered that the substances or articles so disposed of could become radioactive waste once more if some process, post-revocation, leads to exposures higher than envisaged at the tie of disposal.				
11	7.2.27			We suggest that it would be helpful to address clearance and exemption more extensively or to point to relevant guidance, since this will be a key consideration in the preparation of a SWESC.
The agencies will review the guidance to see whether this aspect requires expansion of further references.				
14	7.2.18, 7.2.19 & 7.2.22	Directive Waste		Is the WMP to be constrained to radioactive waste with appropriate sign-posting to the Integrated Waste Strategy for consideration of Directive Waste management?
The WMP is required to cover radioactive waste. However, it need not be constrained only to radioactive waste, and if an operator wished to include non-radioactive waste in a WMP, the agencies would have no objection. It should be noted that, like the SWESC, the WMP need not be a standalone document, and can be constructed by reference to other documents, such as the integrated waste strategy. All that is required is that the totality of documents comprising a WMP meet the requirements set out in the GRR.				

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18	7.2.17			Para. 7.2.17 states that “redundant objects and structures such as buildings, vaults, ponds” may be considered to be radioactive waste. We suggest that this paragraph is aligned more closely with relevant legislation and Government guidance.
This paragraph is fully consistent with legislation and Government policy. It gives examples of redundant articles and substances that may become radioactive waste over the lifetime of a nuclear site. However, will consider how we might provide further clarification to avoid any confusion between the safety and environmental regulatory requirements.				

Annex A8 Detailed responses to GRR Chapter 8

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3	8.2.4	When applying for release from RSR regulation, the operator will need to show through the SWESC that the site is either already suitable for unrestricted use, or that there are adequate controls in place to maintain any necessary restrictions after release until the site is suitable for unrestricted use.	When applying for release from RSR, the operator will need to show through the SWESC that the site is either already suitable for unrestricted use, or that there are adequate controls in place to maintain any necessary restrictions after release until the site is suitable for unrestricted use. The continuation of a nuclear site licence is an example of a suitable restriction.	Remove redundant "regulation" Since the criteria for release from RSR and termination of a nuclear site licence are different currently, this is a possible situation.
The Agencies will make the correction to remove the word regulation. However, we will not be adopting the proposed additional proposed text at the end of the paragraph. At present it is unclear what, if any, alternative arrangements for exercising control on a site prior to the reference state being reach might be.				
3	8.2.6	applications for release from RSR regulation.	applications for release from RSR.	Remove redundant "regulation"
The Agencies will make this correction.				
3	8.5.18	As a general simplifying presumption, any land containing or contaminated by radionuclides below the RSR out-of-scope values may be taken to meet the standard for release from RSR without		Because of the differences between the assumptions and assessments used to establish out-of-scope values and those used to support an ESC or SWESC, it is possible that the latter may result in

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		further assessment of radiological effects.		calculated doses higher than those defining out-of-scope. Clarification of this simplifying assumption is needed, or guidance that the simplified approach used to set out-of-scope values would be appropriate in this context. There are also questions relating to averaging over waste volumes that would benefit from regulatory guidance so as to avoid single measurements having a disproportionate effect.
We will investigate the points raised here and if appropriate address this matter in the final published guidance.				
4	8.4			Overall, we welcome the approach set out in paragraph 8.4 to the treatment of on-site burials of contaminated objects and structures and of waste disposals for a purpose.
The Agencies welcome the support for the position expressed here.				
4	8.4.10			It would be helpful to clarify the approach set out in paragraph 8.4.10 that monitored natural attenuation should be treated as a disposal. It is unclear how this will be applied to contaminated ground and groundwater, which are not ‘wastes’ and therefore cannot be disposed as waste.

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The Agencies recognise that further clarification would be useful here. This paragraph is dealing with the disposal of radioactive waste not the management of contamination in the ground. Clearly radioactive decay will be an important factor in any proposal for the in-situ management of contamination.				
4	8.4.12 8.4.13			Paragraphs 8.4.12 and 8.4.13 require that the ESC for the dedicated facility will have to define the inventory to be received, otherwise it will be difficult to determine the doses from the facility, and hence the dose 'left' for other parts of the site. On a complex site, this may raise lots of difficulties in that radiological capacity for a disposal facility might depend on the plans for other parts of the site.
The Agencies agree with the observation made here. However, on-site disposals should be undertaken because they are the best option for the management of the decommissioning wastes arising from the site and hence the concept of radiological capacity of a disposal site is potentially of limited use in such circumstances.				
4	8.3.3 & 6.2.21			We note the comments in paragraph 8.3.3, which appear to give flexibility and open the possibility for meeting ONR requirements within the same document suite. However, Paragraph 6.2.21 states that the ONR has indicated that the SWESC may be a suitable location for the safety cases that it requires (subject to certain caveats), which is not yet firm. It will be vital that effective dialogue amongst interested

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				parties and between the regulators continues as the introduction of these new requirements proceeds.
The Agencies agree with the observation made here.				
4	Ch 8			We are unclear as to the intended regulatory process. The environment agencies currently permit discharges and radioactive waste disposal to a repository. Is there also an intent to permit other actions relating to leaving radioactive waste and radioactive substances in situ on a site? In particular, we are unclear as to how contaminated land would be regulated.
The Agencies believe our guidance makes it clear that all forms of disposal on or from and nuclear site require authorisation. With respect to contamination in the ground while we need to take this into account when considering the suitability of on-site disposals currently there is some overlap with ONRs regulatory vires.				
4	Ch 8			We understand that the NS-GRA applies to engineered disposal facilities on a site to which the GRR applies. The GRR allows restricted release i.e. some credit to be taken for land use control if this can be demonstrated to be in place. So the site does not have to comply with the intrusion dose guidance level when the Permit is

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				revoked as long as it will comply within a reasonable length of time. Can it be clarified whether this will be extended to engineered disposal facilities or will they have to comply with the post-closure dose criteria immediately on revocation of the Permit? There appears to be a conflict between the GRR and the NS-GRA.
The Agencies recognise the potential for confusion in this area and we will consider how we might modify our guidance to address this issue. However, it is worth pointing out that the human intrusion criteria for both decommissioning sites and disposal sites are identical and apply at the same point in time (see GRR Figure 4 and GRA Requirement R7) although this is currently describe in different terms because of the potential for earlier release from RSR set out in the GRR. While we do not accept that there is a conflict between the two guidance documents we recognise that it is not possible to always have our publications perfectly synchronised with developing thinking.				
5	8.3.2	"Site" in the SWESC includes the maximum extent of the operator's premises and may also need to take account of other significant adjacent sources of radiological exposure, such as contamination outwith the premises and any adjacent nuclear site(s).		As for paragraph 6.2.10, this paragraph has implications for neighbouring nuclear power stations sites (e.g. Hunterston A and B). Operations involving radioactive substances at one site may be ongoing, whilst such operations may have been completed at the neighbouring site. It is recommended that the guidance reflect this possibility and emphasise that neighbouring operators should effectively communicate and cooperate as SWESCs and WMPs are developed. In addition, the guidance would benefit from more detailed consideration of (and

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				expectations for) linear and other features, which extend beyond the Site Licence Boundary (e.g. pipelines and off-shore discharge points).
The Agencies recognise the issues raised here and will look to provide greater clarification in our guidance. (see also related comments below)				
5	8.3.7	The plan cannot be considered to be feasible until and unless such authorisation is granted. The authorisation of disposals is discussed further in the next sub-section. We expect the WMP and SWESC to be comprehensive in their coverage at the time of application for a variation to dispose of radioactive waste, but we recognise that they may change.		We would request greater clarity with respect to how and when the Agencies might review and assess the SWESC and WMP as being adequate, (noting that a 10 year review is mentioned and Paragraph 8.3.7 implies that the WMP cannot be considered acceptable until an application for a variation to dispose of radioactive waste has been granted).
The Agencies agree that greater clarification in this area could be useful. However, because the Agencies regulate via conditions in an authorisation/permit operators will need to maintain their WMP and SWESC in an appropriate state during the lifetime of the permit and hence these documents (or set of documents) will develop as time passes. Clearly this will provide opportunities for the Agencies to provide constructive feedback on the quality and completeness of these documents relevant to the use being made of them at the particular stage in a sites lifecycle. There will, however, potentially be some key times where these documents will need to be provided as evidence for applications to vary an authorisation and hence will be subject to more formal review and approval.				
6	8.5.15			Finally, ECC echoes the remaining concerns raised by Nuleaf over the expectations of what the planning system should be responsible for. It is right for planning to consider the future use of land,

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				having regard to site conditions and the views of regulatory experts in the field of environmental protection, health and safety. However, if a site is de-licensed in circumstances where it poses a risk to the environment or human health then this would appear to conflict with 'polluter pays' principles set out in the Environmental Protection Act; and any future use of the land could be prejudiced until a retrospective fix is applied to historic problems to make the land fit for purpose. This could sterilise sites or create management liabilities for which there would be no clear responsibility. It is therefore essential that clarification is provided on this matter to ensure there is no potential risk to human health or the environment when any part of a site licence is surrendered. There needs to be a clear recognition that the planning regime is principally concerned with the use and development of land, not with the regulation or management of hazards which ought to fall within the remit of other regulators.
The Agencies recognise the concerns expressed here. However, we feel that our guidance is very clear that there is an option for early release from RSR only if it can be demonstrated that where continued controls are required suitable arrangements can be made to ensure these controls remain effective. It is worth noting that in most situations envisaged by the Agencies this would not occur for a very long time (possibly 10 to 30 years of				

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monitoring and up to 300 years depending on the SWESC) where waste and contamination are being managed on-site. The Agencies will continue to regulate the site until such time as it can be safely released from RSR.				
12	8.3.2	"Site" in the SWESC includes the maximum extent of the operator's premises and may also need to take account of other significant adjacent sources of radiological exposure, such as contamination outwith the premises and any adjacent nuclear site(s). The land area assessed through the SWESC does not reduce where there has been partial release from RSR, but remains fixed until full and final release of the site from RSR.	*[Tentative suggestion…]* The word "site" as used in the context of "SWESC" includes the maximum extent of the operator's premises and may also need to take account of other significant adjacent sources of radiological exposure, such as contamination outwith the premises and any adjacent nuclear site(s). The land area assessed through the SWESC does not reduce where there has been partial release from RSR, but remains fixed until full and final release of the site from RSR. The word "site" as used in other contexts within this guidance (as applied to decommissioning sites) means the extent of the authorised premises (see Glossary).	These two meanings of the word "site" are not explicitly contrasted, leading to potential confusion, and doubt about how the guidance on requirements for release from RSR set out in Section 8.5 are to be interpreted. The suggested alternative text is given to point out the difficulty of having two distinct of meanings of the word "site" in use, rather than to try to resolve the issue.
We do not agree that there are two meanings of "site" in the guidance. "Site" is as defined in the glossary. The SWESC needs to consider issues associated both with the operator's site and with any adjacent sources, eg other nuclear sites, which may affect compliance with the requirements of the guidance. However, the adjacent sources are not of part of the operator's "site". We will review 8.3.2 to make this point clearer.				
12	8.5.2	Operators may seek release of the site as a whole, or in steps whereby parts of a site are released before final release of the remaining part of a site.	Operators may seek release of the site (here meaning the authorised premises) as a whole, or in steps whereby parts of a site are released before final release of the remaining extent of the authorised	The suggested alternative text states what we infer to be the intended meaning (i.e. using the Glossary definition of "site" applicable to a decommissioning site).

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			premises.	At final release, only the remaining extent of the authorised premises would need release, so the "site" would be smaller than at the start, so it would not be "the remaining part of a site", but "the remaining site".
We consider that the current wording is clear and that use of "authorised premises" is not a beneficial change.				
12	8.5.3	Before we will agree to release from RSR, operators must meet the following criteria: • all disposals of radioactive waste have definitively ceased; and the site meets our standards (as set out in chapters 4 and 5).	*Further clarification sought - see Comments.*	Would the first criterion always apply in cases of partial release? For example, why could disposals not continue on or from the remaining extent of the authorised premises after a peripheral area is released from RSR, as seems to be envisaged in para 8.5.17). See also comment below on the meaning of "site" in paras 8.5.3 and 8.5.4 taken together.
The answer to this question is provided by 8.5.4, which states that disposal must have ceased on the area that is subject to application, That may be part of a site in the case of partial release or all of the site.				
12	8.5.4	In all cases, the operator will need to demonstrate that the first criterion above is met • for the area subject to the application (whether part or all of the site) and that the second criterion will be met	*Further clarification sought - see Comments.*	We think the meaning of "site" in this context (i.e. paras 8.5.3 and 8.5.4 taken together) seems to be problematic, for example if (as para 8.3.2 envisages) the "site" encompasses "an adjacent nuclear site" (with a different operator) on or from

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		for the site as whole. Here "site" has the meaning described in paragraph 8.3.2.		which disposals of radioactive waste are planned to continue. Paras 8.5.3 and 8.5.4 taken together with para 8.3.2 seem to imply that release of one operator's authorised premises from RSR (whether partially or in full) cannot take place if there is an adjoining separately operated site that is regulated for disposals under RSR. Is this intended?
See 8.3.2 above in relation to the meaning of "site". Paragraphs 8.5.3 and 8.5.4 do not mean that a site cannot be released from regulation while an adjacent site remains permitted. We will review the wording of 8.3.2 and elsewhere to clarify this.				
12	8.5.17	We will not normally agree to partial release of a site, where this leaves a number of physically separate parts of the original site subject to regulation and potentially with restrictions on use. That is because we consider that such partitioning of the site into separate areas might have an adverse effect on regulation under RSR and on the provision of site surveillance and controls on use, both before and after release from RSR. A site may decrease in extent by progressive release of peripheral areas, but we expect there to be a single and continuous permitted area until full and	*Further clarification sought - see Comments.*	Here we assume that the word "site" has the meaning defined for a decommissioning site in the Glossary, and not that in para 8.3.2.

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		final release from RSR.		
The Agencies consider that “site” in 8.3.2 and the glossary have the same meaning. The distinction lies in that the SWESC may need to take account of off-site sources of activity but that does not mean that “site” extends to include these sources. We will consider how to improve the clarity of the wording around this issue.				
14	8.3.2	“Site” in the SWESC includes the maximum extent of the operator’s premises and may also need to take account of other significant adjacent sources of radiological exposure, such as contamination outwith the premises and any adjacent nuclear site(s). The land area assessed through the SWESC does not reduce where there has been partial release from RSR, but remains fixed until full and final release of the site from RSR. We take this approach because the dose limits and constraints in the legislation and our dose and risk based principles and requirements relate to all sources of exposure to members of the public including sources on adjacent sites or land and on parts of the premises previously released from RSR.		Is the term an “operator’s premises” intended to apply to those defined within the permit/authorisation boundary? Guidance on how off-site features such as pipelines are considered would be of value. Also in terms of SWESC where you may have a decommissioning site adjacent to an operational site and a new build site, does this mean that the area considered remains fixed until all activities across all co-located operators have been released from RSR? Clarification of whether the SWESC has to be maintained by a permitted operator considering their operations and those of any adjacent site while they both remain regulated under RSR would be useful.

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Agencies other guidance explains that features such as pipelines are part of the premises and hence part of the "site" as defined in the GRR. This may differ from the site as defined by ONR. Section 8.5 explains that an operator can apply for release from part or all the site. As noted in 8.3.2 the SWESC may need to take account of other off-site sources of activity but these do not form part of the operators "site" nor preclude the ability to release that sites from RSR, whether in part or full.				
14	8.5.17	A site may decrease in extent by progressive release of peripheral areas, but we expect there to be a single and continuous permitted area until full and final release from RSR.		Reiteration that partial release of a site from RSR does not change the land area that needs to be considered in the SWESC would be valuable.
In view of related comments, we recognise the need to review the use of "site" in this document and will consider this response as part of that.				
14	8.5.18	As a general simplifying presumption, any land containing or contaminated by radionuclides below the RSR out-of-scope values may be taken to meet the standard for release from RSR without further assessment of radiological effects.		Out of Scope values are used to demonstrate that waste from land management no longer has to be regulated as radioactive. Their use in terms of support of an ESC or SWESC and/or surrender of an authorisation is less well established. Guidance on the use of this simplifying assumption would be valued.
We will investigate the points raised here and if appropriate address this matter in the final published guidance.				
15	8.5.15			Restricted Use NFLA note that the proposed Guidance also proposes making some sites available for

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				restricted use "with a suitable body exercising control". Thus it is proposing that sites which are only suitable for a restricted use could be removed from RSR. But the Guidance does not give any indication about which body will exercise that control and enforce the remaining restriction. With the huge cuts in budgets over the past few years, Local Authorities will not have the necessary resources to carry out this role.
The Agencies recognise that there are several potential forms of control over how nuclear sites are used. It will be for operators to set out what controls are necessary and how these will be exercised when they seek release from RSR. We do not consider it appropriate to specify the nature of these controls in this document. For clarity we do not envisage any new or additional roles for LAs beyond their current land use planning role				
15	8.5.15			Whilst a policy of not necessarily returning a site to a green field state clearly allows the flexibility to implement a nuclear waste management programme based on monitorable, retrievable storage of waste at the site of production, and avoids the need to transport waste around the country; it could also mean quietly giving up on the idea of ever fully cleaning up the nuclear legacy, and different standards of decontamination depending on the intended future use of the site – with lower standards for sites likely to be developed for commercial or industrial use for example.

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				Former Environment Agency Inspector Ian Jackson argues for tough clean-up standards. He points out that clean-up standards which might be acceptable to the generation that has benefited from employment on the nuclear site may well not be acceptable to subsequent generations. Setting tough but transparent standards now for clean-up would have two clear advantages. Firstly, they would provide a driver for innovation because clean technologies don't just happen by themselves, and secondly, they would reduce lifecycle costs by establishing a common end-point for site decommissioning. NFLA concurs with such a view. (4)
The Agencies do not accept the premise in these comments. Our approach is based on optimised end states, which ensure protection of people and the environment while achieving the best outcome for each site taking account of local considerations, based on the transparent and tight standards.				
15	8.5.15			Para 5.2.11 says "it is unlikely that the environment agencies would accept a claim for a period of restricted use lasting longer than 300 years, because of the major social changes that may take place over long periods of time". Again for the NFLA this is introducing flexibility and uncertainty. Under what unlikely circumstances might the

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				environment agencies accept a period of restricted use for longer than 300 years? How can the public be certain that an area of land which is accepted a restricted use for less than 300 years will be suitable for unrestricted use after that period of time? How does the public know that contamination is not going to spread from a restricted use site into adjacent land? It is the NFLA view that nuclear sites which are only suitable for a restricted use should not be removed from RSR. The environment agencies should encourage tough clean-up standards by only removing sites from RSR if they are suitable for unrestricted use.
The Agencies' have chosen the period of 300 years for the reasons set out in the consultation document. AS we also state in our guidance for the vast majority of nuclear sites in the UK 300 years of controls would be the maximum that would be acceptable. The numerical dose and risk levels st out in our guidance in combination with the 300 year limitation on control of a site provide the requisite protection of the public and the environment. Sites need to demonstrate this by the production of a suitable site wide environmental safety case (SWESC). The SWESC addresses both the site itself and the impacts from the possible migration of radionuclides from the site as time passes. The Agencies are confident that we have a comprehensive set of standards that site operators can show compliance with through their site specific SWESC's.				
17	8.5.15			Finally, we have some remaining concern over the expectations of what the planning system should be responsible for. It is right for planning to consider and plan for the future use of land, having regard to site

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				conditions and the views of regulatory experts in the field of environmental protection, health and safety. However, if a site is de-licensed in circumstances where it still poses a risk to the environment or human health then this could conflict with 'polluter pays' principles set out in the Environmental Protection Act, and any future use of the land could be prejudiced until a retrospective fix is applied to historic problems to make the land fit for purpose. This could sterilise sites or create management liabilities for which there would be no clear responsibility. There needs to be a clear recognition that the planning regime is principally concerned with the use and development of land, and in terms of enforcement with retrospective action where a breach of land use consents has taken place, not with the monitoring and regulation or management of radioactive hazards. These are the responsibility of the site operator, whose regulation ought properly to fall within the remit of other regulators.
This guidance makes no specific assumptions and has no expectations about the future role of the planning regime or the LAs. It is important to state categorically that the Agencies cannot and will not pass on any of our regulatory duties to another body. For the avoidance of doubt, we cannot hand over any regulatory controls associated directly with a RSR permit. The Agencies will continue to regulate the site until such time as it can be safely				

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released from RSR.				
17	8.5.15			**General comments and uncertainties** Our response to the specific consultation questions is set out in section 3. Our members have also raised a range of other points and highlighted some uncertainties that they have as to what is proposed. A primary concern of NuLeAF is to ensure that regulatory control guarantees public safety and environmental health, that there is public confidence in arrangements, and that any future ambiguities and uncertainties are avoided. It is not clear from the guidance what role is envisaged for local authorities and the planning system in providing oversight of sites after the permit is surrendered. However, previous concerns have been expressed by NuLeAF that, due to the reactive nature of planning control and enforcement, the planning system is not an appropriate vehicle to ensure the regulation of activities on a site that hosts radioactive substances and risks. Furthermore, we believe the final guidance should address a number of issues, namely: a. There should be a clearer explanation of the context to this

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				work and what benefits the environment agencies thinks it will deliver to the NDA, site operators and, most importantly, to communities. b. The guidance should make it clear and explicit that, given the timeframes involved with decommissioning of nuclear sites, the guidance will ensure public safety and environmental health objectives are met regardless of the regulatory arrangements that may be in place some decades hence. c. There should be more information provided as to the circumstances in which the regulators would accept surrender of the licence. d. The guidance should explain the potential for the delicencing of parts of sites and how such a situation would be dealt with in terms of the passing on of regulatory controls. e. There should be a clear explanation of what is meant by 'planning'. Figure 2 from the GRR consultation document is misleading, in that is says 'planning' after the 'site reference' line is crossed – it implies

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				town planning regulations, but is this really the normal planning of any land use once the site is unrestricted? In addition, given that these proposals may impact on the planning system, there should be engagement on this draft with the Department of Communities and Local Government (DCLG).
We are of the view that the guidance adequately explains its context and the standards we require operators to achieve before a site can be released from regulation by the Agencies. We recognise the concerns raised here and have discussed them several times with NuleaF. We would like to repeat that ○ We will only release sites from regulation when we are satisfied that people and the environment will be adequately protected; ○ In principle, that protection may involves controls on the use of the site ○ In practice, it is the operators responsibility to identify the controls and convince us of their adequacy; ○ Those controls may take a number of forms which are primarily an issue for the operator to identify and justify the appropriate range of controls for a given site ○ We do not expect LAs to exercise any controls other than their normal planning role in this matter The following Responses refer the relevant bulleted points: a) This guidance is to ensure that operators meet their statutory duties under RSR, taking account of all relevant considerations; b) We believe our guidance already makes this point but will review the text to see if we can make this clearer; c) We consider that the guidance adequately address these issues. However, we will review the text to see if we can provide further clarification; d) Delicensing is a separate process that is the responsibility of ONR. It is not appropriate to include in the Agencies guidance; e) We will consider what can be done to provide greater clarity here.				
18	8.4.2			Para. 8.4.2 states that an operator who wishes to emplace, or leave buried in situ, radioactive waste should apply for a

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				variation to the permit "at the earliest practicable opportunity". We suggest that as it is not necessary to vary the permit until a suitable time before the operator is ready to commence the disposal activity, it is not clear why the disposal application should be required substantially ahead of this time.
As stated in paragraph 8.4.2 operators are not authorised to dispose of waste until and unless they apply for and are granted a variation to the permit to that effect, and as such their WMPs cannot be regarded as implementable in the absence of the necessary variations. We therefore encourage operators to apply for requisite variations in a timely manner. For the avoidance of doubt, RSR is a permitting regime with applications to vary permit conditions open to public consultation. We cannot authorise or agree disposals before or outside the variation process.				
18	8.4.16			Para. 8.4.16 states that until an in situ disposal is authorised, buried waste is regarded as waste awaiting retrieval and disposal. This appears to be inconsistent with Government guidance and with para. 7.2.20 of the draft GRR which explains that "Ground or groundwater contaminated with radioactivity, for example from past leaks, is not radioactive material or waste, provided it remains in situ".
We do not believe there is any inconsistency here. GRR paragraph 7.2.20 refers to ground or groundwater that is contaminated. That is as set out in paragraph 2.32 to 2.36 of the Government Guidance on the scope and exemptions from RSR legislation in the UK, which means that this is not radioactive material subject to the RSR regime while it remains in situ, but may in time become material or waste, as recognised in paragraph 2.36. In contrast GRR paragraph 8.4.16 simply states that waste in situ (as exemplified at paragraph 7.2.17) will need authorisation to remain in place permanently, and until such authorisation is granted we will regard that as waste awaiting retrieval.				

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18	8.5.15			We recommend that the finalised document should recognise more clearly that institutional controls from other authorities (such as planning authorities) would continue to apply during the up-to-300-year period before the site reference state was achieved.
The Agencies will review the text to ensure the need for appropriate controls is clear.				
20	8.5.15 and R8			Local authorities would be likely to oppose allowing unrestricted use on a site where nuclear waste is buried. Environmental models may suggest that the risk from buried waste is consistent with a risk guidance level of 10-6 per year (that is, a risk of death of 1 in a million per year due to exposure to ionising radiation) – because the probability of doses higher than 0.01-0.02mSv/yr is low. In other words there could be a possibility of a much higher dose. Both the Near Surface GRA and the GRR consultation say, in relation to human intrusion: "The assessed effective dose to any person during and after the assumed intrusion should not exceed a dose guidance level in the range of around 3mSv/year to around 20mSv/year."

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				There should be a clear distinction between a de-licensed nuclear site from which the most exposed person is likely to receive a maximum dose in the region of 0.01mSv/yr to 0.02mSv/yr and a near surface nuclear dump from which the most exposed person might receive up to 20mSv/yr if at some point in the future buried waste is breached by someone without any prior knowledge of the site. A de-licensed site should not be something capable of administering doses of up to 20mSv/yr. There should be minimal opportunity for doses of over 0.01 – 0.02mSv/yr even with large errors and uncertainties in the environmental models used.
The Agencies do not agree with the analysis presented in this comment. The use of a risk based approach means that it is possible that in the future doses that might be received by future occupiers of a site will be above 0.02 mSv/yr as stated in the Near-surface GRA. The addition of the human intrusion dose guidance level means that operators will be constrained to ensure that possible low probability future scenarios will not give rise to doses greater than 20 mSv/yr. With respect to the our guidance for release of decommissioning site where waste has been managed by on-site disposal and our guidance for dedicated disposal facilities not on a nuclear site the agencies have exactly the same objective to protect the public from the effects of ionising radiation. Both the GRA and the GRR require the assessment of a site where radioactive waste has been disposed to demonstrate that it will be safe once released from regulatory control. For decommissioning sites where waste has been disposed regulation might continue for that site (or part of the site) for up to 300 years to ensure the public are adequate protected.				
22	8.5.15			See above regarding future control, regulation and monitoring. Future

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
				arrangements need to be made clearer, and they must be feasible. For example, passing such responsibilities to local authorities is unlikely to work unless there are guaranteed and ring-fenced resources to support them.
For the avoidance of doubt, we cannot hand over any regulatory controls associated directly with a RSR permit. The Agencies will continue to regulate the site until such time as it can be safely released from RSR.				

Annex A9 Detailed responses to GRR Chapter 9

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
4	Fig 5			All anthropogenic contamination remaining on the site is subject to treatment in a SWESC. According to Figure 5, some types of contamination are subject to the NSGRA, other types to unspecified parts of the NS-GRA and other types not subject to the NS-GRA at all. If the NS-GRA and the GRR set out differing requirements, then a view would be needed on how to comply. On the other hand on a complex site with many types and generations of contamination, a consistent and sensible SWESC may be difficult to produce if requirements differ for different sorts of contamination.
The Agencies recognise the issues raised. Further explanation of Figure 5 might be useful to help explain the relationship between the NS-GRA and the GRR. However, we do not believe that there will be a problem in developing a consistent SWESC that includes purpose built facilities as well as other disposals and contamination.				
11	Fig 5			Figure 5 is very unhelpful in that it does not provide sufficient information. It states that parts of the NS-GRA may apply to in situ disposal of radioactive waste. Some clarification is required in that it would be desirable to know which parts apply or how the environment agencies will decide which parts apply. We note that most of the

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
				requirements in the NS-GRA are carried across to the SWESC so we wonder how much it adds to say that the NS-GRA requirements apply or may apply.
The Agencies believe that this figure is helpful in relating the GRR to the existing NS-GRA. We will, however, consider how this figure might be improved either by modifications to the figure itself or by provision of additional explanation within the text of the guidance.				

Annex A10 Detailed responses to GRR Chapter 10

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below

Annex A11 Detailed responses to GRR Chapter 11

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
11	11.1			In the glossary, human intrusion is defined as 'any human action that accesses the waste or damages a barrier providing an environmental safety function'. This Is a definition that is relatively clear when dealing with a facility for the disposal of radioactive waste, whether this is designed for a purpose or involves the adventitious use of underground void space. However, when dealing with in-ground contamination, the application of the definition is much less clear. For example, drains or slabs or contaminated land left in situ if deep would be reasonable to assess on the basis of a 3 to 20 mSv per year criterion, but this might be much less appropriate if the contamination were shallow and might be accessed in the course of common (for example agricultural) processes. We think consideration should be given to the workability of the definition.
The Agencies will consider how the definition of human intrusion might be amended to clarify its scope.				
11	11.1			It would be helpful to give the Waste Management Plan a distinctive description as the term or similar terms are already in use at many operating sites.

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
The definition of WMP appears to the agencies' to be adequate. It should be noted that, like the SWESC, the WMP need not be a standalone document, and can be constructed by reference to other documents. All that is required is that the totality of documents comprising the WMP meet the requirements set out in the GRR.				
12	Glossary	Disposal (in situ): An application for authorisation to dispose of the waste based on a decision not to retrieve it.	Disposal (in situ): Grant of an application for authorisation to dispose of radioactive waste without retrieving it.	If taken literally, the current definition would mean that the act of making an application would put the waste in question into a state of unauthorised disposal until the application is granted (which might take some time).
The agencies will review this definition to ensure it is accurate.				
12	Glossary	Site: For a disposal facility, the piece of land where the facility is, or is intended to be, located. More generally, the piece of land where one or a number of sources of radioactivity are, or are intended to be, located. For decommissioning sites, the piece of land that is delineated by the permit as constituting the authorised premises.	*See Comments*	See comments above about there being multiple definitions of "site". The definition "For a disposal facility…" is from the NS-GRA but is it really needed (or used) in the GRR? The Glossary definition does not mention the SWESC-specific definition set out in para 8.3.2, which seems to be based partly on the NS-GRA definition. [The 8.3.2 definition includes "adjacent sources", similar to NS-GRA language.]
The agencies will review these definitions to ensure they are accurate.				

Ref No	**GRR** Ref No	Please **paste a copy** of the original text you wish to comment on below	Please provide your **suggested alternative text** below if applicable or go to comments column	Please provide any **comments** and/or **reasons** for suggested alternative text below
12	Glossary	Site reference state (of a nuclear site): Site state marking the boundary between the period of restricted use of a site and a subsequent period of unrestricted use.	Site reference state (of a nuclear site): The physical condition of a site in which it can be made available for unrestricted use, including release from RSR.	The site reference state is a physical condition of the site; it does not necessarily define a 'boundary' in time, as the current Glossary definition states. See also comment on 3.3.7, where "site reference state" is first introduced.
The agencies will review this definition to ensure it is accurate. [This does appear to be good suggestion]				
19	11.1	http://www.hpa.org.uk/radiation/glossary/default.htm;	Remove or refer to https://www.phe-protectionservices.org.uk/glossary/	This glossary no longer exists
The agencies will make this correction.				
19	11.2	Public Health England (formally Health Protection Agency)	Public Health England (formerly Health Protection Agency)	
The agencies will make this correction.				
22				we want to see the term 'clean-up' defined more clearly.
The agencies will consider whether a definition of clean-up is required, beyond that which is evident from its context in the document.				

Annex A12 Miscellaneous/general comments

Ref No	Miscellaneous/general comments
6	**Next Steps** It would be beneficial if the consultation outline the next steps and timeframes, to enable on-going engagement.
This can be found on the consultation website	
9	**Overall comments** There are many good ideas in this guidance document. In particular, the acceptance of the idea that radioactively contaminated soils and building materials have a part to play in site restoration and may remain on site is a major step forward. Comments have been made only where further improvement or clarification is considered to be desirable. The document reads very unevenly, moving between policy, advice and specification. It would be useful to separate these elements more clearly: • This is where we are going, and some general principles on how to get there (and where not to go); • These are the Claims that must be substantiated; • Here is some advice as to the arguments and evidence that are likely to be acceptable.
We recognise that there are differing views on layout and content of guidance, however, we are content with the current structure and content	
9	The document talks in several places about permit surrender. This is a concept not consistent with the current RSA in Scotland, and presumes upon significant regulatory change. If there is going to be significant regulatory change, it could usefully result in an integrated site release process covering the whole scope, not only waste disposal.
The guidance explains that surrender is the term used in England and Wales and revocation the term in Scotland. In general we have used the term “release” as a neutral term covering surrender and revocation.	
9	It would appear that the only point at which regulators make a binding decision is at the final release of the whole or part of a site. This is not in the spirit of engagement. This leaves the operator (who is acting on behalf of the Government) at risk for a substantial period of time,

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	possibly/probably several decades. Given that a number of documents are produced early and are maintained, it would be reasonable for the regulator to accept these documents formally in a timely way, to minimise the overall programme risk for both parties. The guidance accepts that there will be many decisions along the way. Again, to the extent that they are formally documented, they should be signed off. Such a process would facilitate the timely and economic termination of historic nuclear liabilities without compromising environmental safety. It would also spread the regulatory task, which otherwise will be focussed on a single herculean effort at some future time.
We recognise the need for engagement between operators and regulators throughout the period of operation of the facility. That is why, we have introduced the concept of the WMP and SWESC so that both the regulator and the operator understand what is being proposed and can discuss its adequacy. EPR and RSR93 do however require certain formal permitting decisions subject to public consultation and we cannot pre-empt these processes or the decisions they lead to. Early engagement with regulators is encouraged to that operators can mitigate any risk associated with these statutory requirements.	
9	The document talk in a number of places about regulator decisions, without giving the clear guidance that will be needed by Inspectors to make timely decisions in a way that is consistent between Inspectors, and transparent. It is important that operators should have a clear idea about the criteria on which a decision will be made, so that the actual decision is seldom a surprise. This will lead to better submissions determined with less regulatory effort. The use of judgement should be minimised because it always has a subjective element. In the spirit of engagement, a guidance document needs to be shared guidance that is of use to both regulated and regulator.
We agree with this statement, but would observe that the GRR sets out, in considerable detail, the criteria to be met and we do not foresee the need for further guidance. It is for operators to decide how to present their arguments in the SWESC to meet these criteria.	
9	Decommissioning and site restoration is a flexible process. One of the few certainties is that the unexpected will be found. It is therefore important that the authorisation process is highly responsive to needs. There present process, whereby a change in authorisation takes several years, is not consistent with timely restoration and reduction of risk. This requires either a greatly accelerated timescale for authorisation modification, or a much more flexible authorisation regime (or both).
We do not agree with this comment. Operators need to comply with all relevant legislation and need to consider carefully the implications of any	

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proposed changes in decommissioning terms of safety and environmental protection in general before making such changes. Where pre-approval is needed, we need adequate time to consider the proposals. It is a matter for operators to plan for adequate time to obtain the necessary permissions.	
9	The activity concentrations that form the basis for the legal definition of radioactive waste were calculated for highly generic circumstances. Real circumstances typically will be different. It is therefore possible that certain accumulations of radioactive material beneath the ground surface, that would be defined as radioactive waste on the basis of activity and activity concentration, will not be expected to lead to an exceedance of the 10 µSv/y risk guideline. Small amounts of buried contaminated concrete would probably fulfil these criteria. It is important that the permitting process can accommodate such eventualities with proportionate and timely controls. Conversely, it is also clear that activity concentration of some nuclides at the limit of radioactive waste, will produce unacceptably high doses under certain foreseeable circumstances. For example, extensive areas of land containing 1 Bq/g of Cs 137, or even 0.1 Bq/g of Cs 137 at ground surface, would produce unacceptably high doses to a full-time site resident.
We agree with the first part of this, and that is why our requirements are based on impact and not on simplistic concentrations of activity.	
9	The document appears to contain a number of ideas relevant to the deep disposal of long-lived higher active waste. Future uncertainty of landform evolution is likely to make little difference to contaminated land – few things are more dangerous than living on and farming the surface of an uncovered waste deposit (contaminated land is equivalent to this). The guidance could be shortened and simplified by focussing on this limiting risk. Modelling studies etc. are likely to be limited simply to showing that one of a small number of scenarios is bounding. This approach has been used in determining the regulatory standards.
We do not agree with the premise of this comment, that we need only consider uncovered contamination.	
9	There is one significant difference between contaminated land and waste disposal by deposition. In the latter case there is knowledge of and control over inventory. In the former case inventory is not well known and has to be determined by investigation. American site restoration guidance discusses this matter at considerable length, e.g. MARSSIM and the documents to which it refers. This guidance is not directly applicable to the UK regulatory situation, but it gives an indication of what is necessary if clear, defensible and economic decisions are to be made. In the absence of guidance on how measurements are to be compared with either objective or even subjective criteria, there will be much confusion, wasted effort and wasted public money.

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We agree but this is not within the scope of this document	
10	Main Issues 1. We welcome the development of this guidance. It addresses an important area and it is important for operators to understand the process. We understand that the guidance is to be trialled at a number of sites and we agree that this is sensible since it is likely that practical difficulties will only be recognised when the guidance is applied in detail. 2. The guidance is closely based on the NS-GRA, which is good as we believe that the NS-GRA is a very satisfactory basis for regulation. However, we are concerned that certain aspects of the guidance might work well for a repository, but might work less well for other forms of on-site anthropogenic contamination. Some more detailed comments are provided below. We suspect that a number of issues may arise during trial application of the guidance. 3. We note the comments concerning the distinction between ONR delicensing and the release from RSR regulation. In our view, it is very important that the approach to these two processes is as far as possible co-ordinated and as far as possible does not give rise to any inconsistent requirements or unnecessary submissions of additional documents that cover the same aspects. 4. We are nervous that the same information will need to be submitted to the regulators in multiple forms. For example, the draft guidance introduces the requirement for a Waste Management Plan. There are already requirements for Integrated Waste Strategies and Radioactive Waste Management Cases, for example. There is the potential that duplication will be involved in addressing these requirements. We note the comments in paragraph 8.3.3 but are concerned nonetheless. Paragraph 6.2.21 states that the ONR has indicated that the SWESC may be a suitable location for the safety cases that it requires (subject to certain caveats), which is not comforting. On the other hand, we recognise that the guidance is addressing a new area and that approaches may be identified as dialogue continues. 5. The guidance is very lengthy. We wonder whether the length could be reduced by more extensive cross referencing of the NS-GRA. 6. It would be helpful to provide clarifications about the process for the regulation of contaminated land. It is noted in the draft guidance that this is not waste, but it is stated that the SWESC should cover all anthropogenic contamination, not just waste. It would be helpful if the guidance could spell out the regulatory process that is envisaged for contaminated land. 7. We note that many decisions as to the management of buried wastes may await the collection and analysis of data. In many cases these processes may not proceed for practical reasons, which can relate, for example, to the progress of decommissioning of buildings that are nearby or the timing of work programmes. The guidance seems to indicate that actions and decisions need to be immediate. We recognise that the environment agencies would be concerned if an operator were not to take timely action. However, in our view it would be more balanced to say that any delay in decision making should be fully justified and the environment agencies reserve the right to take some action or words to that effect.

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	We think it is important to emphasise that any response to the guidance should be proportionate. Thus the actions associated with low levels of contamination and low radiological impacts should be much less than those associated with higher levels and higher impacts. We therefore welcome the statement in paragraph 3.1.4. We urge that this should be a key consideration in the implementation of the guidance.
The following comments refer to the relevant bullet point above: 6) Operators will need to take account of any contamination when constructing their SWESC, and will need to assess the implications in terms of how the requirements in the GRR are met. 7) We are unclear what this comment refers to, but there is no expectation that actions and decisions need to be "immediate". All actions and decisions should be taken at the right time to deliver the optimised approach.	
12	**General Magnox Ltd Comments** • We very much welcome the development of the GRR and the innovative approach to consulting on this emerging area of RSR, and the opportunity it presents us to influence its content while it is being developed. • In particular, we welcome the plan for "a period of trial use and comment", following the current consultation process. By agreement we are already engaged with this emerging area of RSR at two proposed 'lead and learn' sites (Winfrith and Trawsfynydd), having set up Site End State Tactical Groups for both sites, involving ourselves, Regulators and NDA. [Dounreay is the third 'lead and learn' site.] As part of the 'lead and learn' process the 3 sites are routinely sharing information and experience as we progress through the process. We therefore anticipate making further more detailed comments based on operational experience at some point in the future. We assume that appropriate revision of the GRR will then take place, and that this revised GRR will be available before permit conditions covering SWESC and WMP are introduced. • One of our 'lead and learn' sites (Winfrith) is working towards an 'Interim End State', in which context definitive decisions about the intended eventual 'site reference state' are needed imminently. By contrast, the 'site reference states' for Trawsfynydd and other Magnox sites will not need to be finalised until the 'Final Site Clearance' phase of decommissioning that will follow a likely multi-decade period of quiescence ("Care & Maintenance"), and in this context the 'site reference state' declared will be more indicative and therefore may be subject to change as time progresses. We therefore feel it is important that (a) a proportionate approach is taken to the requirements (e.g. for WMPs and SWESCs) for sites with differing decommissioning strategies, recognising some of the uncertainties inherent for long decommissioning timescales, and (b) the timing of when the requirements become active needs to take account of the fact that some sites will not be seeking release from RSR for many decades.

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	• We note that parallel work by NDA, regulators and Government on "Proportionate regulatory control of nuclear sites approaching their Site End States" may in due course result in a changed context for the GRR and wider nuclear regulation, but recognise that this work may take some time to come to fruition. We see this as a key piece of work in reducing any unnecessary regulatory burden, including the avoidance of dual-regulation for what effectively constitutes the same risks and hazards. We therefore suggest that permit conditions covering SWESC and WMP should not be introduced until this work is completed. • We are not considering in any detail potential interfaces with regulation under the Site Licence Conditions under NIA65 but we see the work of the 'Proportionate regulatory control' working group as being essential in establishing a more integrated approach to the future regulation of decommissioning nuclear sites. The title of the GRR is *"… release of nuclear sites from RSR"*. We note that the document also covers authorisation of on-site disposals and the proposed new requirement to develop and maintain a SWESC and WMP. We have identified a number of <u>themes</u>, under which we would seek to gain further clarity during the "period of trial use and comment": • <u>Introducing and implementing the new requirements:</u> o How and when will permit conditions requiring a SWESC and WMP be introduced? This is particularly important for us from a work planning perspective with 12 sites (see the above comment regarding the timing of when the requirements become active). o We understand that a distinction needs to be made between *"establishing and maintaining"* a SWESC and WMP (with some degree of regulatory oversight) and *"submitting"* a SWESC and WMP when applying for release from RSR (or for a permit variation for authorised on-site disposals where required). We feel this could be more explicit in the GRR. o We assume that new *"limits and conditions"* will only be introduced upon grant of a permit variation for any authorised on-site disposals related to the above, and that the existing permit already affords the requisite level of protection during the period of RSR.
The Agencies has just completed consultation on the GRR. We will discuss the introduction of permit conditions, the implementation of the requirements in the guidance and the regulatory process with operators at a later date.	
12	**General Magnox Ltd Comments cont.** • <u>Concepts of "disposal" and their implications for timings of disposals and authorisations:</u> o We think that the Glossary definition of *"disposal (in situ)"* would benefit from amendment. [See specific comment in the Response Form below.]

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	○ We perceive some 'tension' within the aspirations for a *"single application"* …*"at the earliest practicable opportunity"*. In some cases, the *"earliest practicable opportunity"* may not be until near the end of a multi-decade period of quiescence ("Care & Maintenance" for Magnox reactor sites), and this may be difficult for some stakeholders to understand. We would therefore suggest *"at the appropriate time"* as being a more generally applicable phrase than *"at the earliest practicable opportunity"*.
We recognise this concern and will seek to clarify the guidance on this.	
12	**General Magnox Ltd Comments cont.** • Storage/accumulation of radioactive waste vs. disposal (including in-situ disposal) ○ We understand there is ongoing work by the environment agencies and the Office for Nuclear Regulation which aims to clarify this. ○ We welcome the fact that the GRR (paras 7.2.4 and 8.4.26) refers to stockpiling of radioactive waste (e.g. rubble) awaiting disposal. We anticipate that in some cases, such stockpiling may be a necessary enabler for optimised final disposition of radioactive waste and would seek to work with the environment agencies in order to take a pragmatic approach. • How will regulators communicate that the evolving WMP and SWESC are satisfactory? ○ We understand that the only definitive test of a satisfactory WMP and SWESC will be grant of a permit variation for authorised on-site disposals, or release from RSR. We will seek to use the "period of trial use and comment" to provide clarity on how the environment agencies will scrutinise the adequacy of WMPs and SWESCs prior to formal applications being made and indeed the required detail for those sites where there may be no intention to make an application for disposal(s) for several decades.
We recognise that further work will be required in this area as WMP and SWESC are progressively implemented by operators. However this is out of scope of the guidance.	
12	**General Magnox Ltd Comments cont.** • Terminology on 'unrestricted use', 'site reference state', 'the end of all planned work on site involving radioactive substances', 'restricted use', etc ○ The "site reference state" is a key concept in the GRR. We understand that it means a physical condition of the site in which it can

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	be made available for unrestricted use, including release from RSR; it does not necessarily define a "boundary" in time, as the current Glossary definition states[4]. We think that it is not quite correct to use the term "site reference state" to define the point in time after which unrestricted use is assumed to occur and the human intrusion dose guidance levels (R8) should be applied in the SWESC. [See also specific comments below on the applicability of the risk guidance level (R7) and human intrusion dose guidance levels (R8).] o We think that the phrase "the end of all planned work on site involving radioactive substances" is an important one in the GRR which would be benefit from a shorter, clearly defined term, such as "physical site closure (state)". o We suggest a Glossary definition of "physical site closure" along the lines of: *"Technical and administrative actions to put a nuclear site in its intended final physical state after all planned work on site involving radioactive substances has ceased"*. Such a definition would combine aspects of the NS-GRA definition of disposal facility "closure" with a form of words (*"when all planned work on site involving radioactive substances has ceased"*, or similar) that is used several times in the GRR consultation document to describe the state of the site at the earliest potential opportunity for release from RSR, but before the "site reference state" is achieved. We think that in relation to NDA end states terminology, the "physical site closure" state should equate to an "Interim End State" (where proposed) while the "site reference state" will in many cases equate to the final "Site End State. • Different meanings of the word "site" and implications for the process for release from RSR o We think that there are three specific meanings of the word "site" in use in the GRR; in simple terms meaning (a) the authorised premises (a.k.a. permitted area) of a decommissioning site, (b) a potentially larger area to be covered by the SWESC, and (c) the NS-GRA definition. We do not think that the NS-GRA definition (included in the Glossary) is actually used much if at all in the GRR, but the existence of the other two definitions makes the intended meaning of some parts of the GRR difficult to understand, especially in the context of Section 8.5 "Release from RSR" and the related definition of "site" in paragraph 8.3.2. We have made some specific comments below on relevant paragraphs in Section 8, although because we are not entirely certain of the intended meanings, we are not able to make very concrete suggestions for alternative text. We infer that two distinct meanings of "site" are

[4] Para 3.3.7 as written seems to say that release from RSR may not occur for some time after the site reference state is reached ("for the purposes of validation monitoring"). This seems to be a contradiction of the Glossary definition in terms of a "boundary" in time between periods of restricted and unrestricted use.

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	in use in paragraphs 8.5.2, 8.5.3, 8.5.4 and 8.5.17, without it being clear which one applies. o Would it be possible to use the term "authorised premises" or "permitted area" instead of "site" in applicable places? We note that because of the potential option of progressive release (e.g. in para 8.5.17), the "authorised premises"/"permitted area[5]" might change in extent over time, which might complicate use of the term.
We recognise the concerns about the use of the word "site" and will consider how to clarify.	
12	**Additional Comments from Magnox Ltd.** During the "period of trial use and comment" the focus will no doubt be on the three identified "lead and learn" sites (Dounreay, Winfrith and Trawsfynydd). However, these are all sites at which it is foreseeable that non-trivial radioactive inventories could remain after release from RSR, and authorisation of on-site (including in-situ) disposals could be required at some point (in the relatively near future in the case of Winfrith in particular). However, at some sites, such as some areas of Harwell (where partial release may be required in the relatively near future) it is foreseeable that very small radioactive inventories above RSR out-of-scope levels could remain in the ground after release from RSR. We would wish to use the "period of trial use and comment" to explore how the regulatory process will work for such cases. For example (referring to Figure 2): SUGGEST THAT WE DELETE THIS TEXT NOT RELEVANT TO THE CONSULTATION a) Will there always need to be a "period of monitoring for validation purposes" or could "earliest release" be simultaneous with the end of "all planned work associated with radioactive substances"? b) If risk assessments for the area proposed for partial release demonstrate that the risk guidance level and dose guidance level criteria (assuming unrestricted land use) are already met and that risks and intrusion doses are ALARA, would there be any need for a period of restricted use (even if activity is to remain after release from RSR at levels that would be 'in-scope' of RSR if excavated)? **c)** Could authorisation of any in-situ disposals of redundant structures that are slightly contaminated above RSR out-of-scope levels be simultaneous with release from RSR?
The following comments refer to the numbered bullet points above: a) We anticipate that validation monitoring will normally be required but there may be exceptions. We recognise that the guidance can be read to mean that validation monitoring will always be required and we will review the guidance on this issue. b) No – although a period of validation monitoring before release may be required to confirm the arguments in the safety case.	

[5] The term "permitted area" is used in para 8.5.17.

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c) No	
13	***Comments on GRR Consultation Document*** Please note that I have not used the response form provided because it is only suitable for detailed comments on particular sections of text and very few of my comments are of this nature. The following comments are approximately in the order in which the issues occur in the GRR Consultation Document (CD), starting with some overall points. *Differences between GRR and GRA Documents* The style and format of the GRR CD is the same as that of the GRA document on near-surface disposal. (They are also the same as those of the GRA document on geological disposal but this is not relevant to Scotland so I will not mention it again here.) I do not think that this is appropriate. The near-surface disposal GRA document is now about seven years old and is in need of revision. It is important that when it is revised it is made consistent in style and format with the bulk of recent guidance documents issued by the Agencies. This implies that the revised GRA document should be much shorter and contain less detailed guidance (e.g. on ESCs). It is also essential that a revised near-surface disposal GRA is clearly one of a suite of guidance documents on RSR, not a stand-alone item. This implies that it should make more reference to the general principles and requirements given in other RSR guidance documents, rather than appearing to "reinvent the wheel".
We recognise that there are differing views on the layout and format of documentation. We are content with the current structure and content.	
13	*Separate GRR Documents for England, Scotland and Wales* The SEPA web page on the GRR consultation states that the Environment Agency is likely to produce its own guidance on the release of nuclear sites in England from RSR. The reason given is that the Environment Agency must comply with the Defra Smarter Guidance requirements. It is stated that the Environment Agency guidance document is likely to be substantially different in style, format and wording from the GRR CD. I assume this means that the Environment Agency's GRR document will be much shorter and clearer than the GRR CD and will be more evidently one of the suite of Environment Agency guidance documents on RSR. I think that SEPA and Natural Resources Wales should also take this approach. This will be easier if there are separate GRR documents for Scotland and Wales. The basic regulatory procedures, principles and requirements in the three GRR documents should be the same. The differences will be in references to legislation and to other guidance documents from the relevant Agency, and in some terminology.
That statement reflected our understanding of the Smarter Guidance project at the time. It is not necessarily the case now. Our principal consideration is to have one guidance document, setting out a common position, to avoid operators needing to familiarise themselves with two	

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separate guidance documents. So, if possible, the Environment Agency wants to use retain the current guidance document, as revised after consultation.	
13	*Level of Detail in the GRR Document* As a matter of principle, I do not think that the Environment Agencies should be giving detailed, prescriptive guidance to nuclear operators on topics such as the contents of safety cases and of plans for radioactive waste management. In my view the main text of the GRR document should be much briefer (perhaps 20-30 pages at most) and should deal only with the main features of regulatory procedures, the primary regulatory principles and the key regulatory requirements. If any of the Agencies wish to give more detailed guidance, this should be in appendices or in a separate document. My preference is therefore to remove the following from the main text of the GRR document: paras 5.3.13-5.3.30 and 5.3.42-5.3.47, Section 6, Section 7 and Sections 8.2 and 8.3.
We do not agree with this comment	
13	*Figures* The figures should be placed in the text, close to the parts that they illustrate, not given in a separate section. I also suggest that they be reviewed to ensure that they are really needed and that the level of detail is appropriate (not too much or too little).
We will review how we present that figures in the final published guidance.	
13	*New Terminology* I suggest avoiding the introduction of new terminology. In particular, the term “site reference state” seems completely unnecessary.
Where we have introduced new terminology this has been done for specific and well thought through reasons. We are generally content with the decisions we have made in this respect but will always look to make use of plain English where ever possible.	
13	*Structure of the Document* With the changes suggested above, it would not be necessary for the document to have Parts, as well as sections. The latter would be enough.

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We do not agree with these specific comments.	
15	In the NFLA's view, there needs to be a requirement to meet the "polluter pays" principle. It should be clear that the costs of any ongoing control and regulation, including monitoring, are to be met by the operator. And operators need to be prepared to pay for retrieval if necessary. Provision should be made by setting up a special fund to protect the public purse from the possibility of private companies going into liquidation. 1. Introduction NFLA note that there are many nuclear sites in Great Britain currently undergoing decommissioning and clean up. This process might take years, but NFLA note that decisions are needed now about the level of clean-up required and whether to leave some radioactive waste in situ. The proposed Guidance by the three British environmental protection agencies provides a set of requirements to enable site operators to make the decisions they need to bring a site to a state in which it can then be made available for other uses and eventually released from radioactive substances regulation (RSR) for unrestricted use. NFLA note that the proposed Guidance explains the requirements that the environment agencies expect operators to fulfil when developing their plans for the management of radioactive waste and when demonstrating, through a site wide environmental safety case (SWESC), how those plans will leave their site in a state that is suitable for release from RSR. The environment agencies say they will only agree to release a nuclear site from RSR "if they are satisfied that radioactive waste disposal has ended and that the site is in a state that will ensure a satisfactory standard of protection for people and the environment" (emphasis added). The agencies say they want to ensure that radioactive waste and contamination is managed in a way that is safe, and that strikes an appropriate balance between human health, environmental, societal, economic and other relevant factors, so that nuclear sites may eventually be released from regulation under radioactive substance legislation. In regulating radioactive waste disposal, the environment agencies are obliged, by international and domestic standards and law, to ensure that exposures of people to radiation are kept below certain limits and constraints. But in addition exposures must be kept as low as reasonably achievable, taking account of economic and societal factors - this is called 'optimisation'. Here NFLA looks at what is being proposed through the prism of the environmental principles it agreed upon at the NFLA Steering Committee AGM in 2004. These determine its response to all radioactive waste policy consultations. Environmental Principles The NFLA Steering Committee agreed a set of clear environmental principles which should be used for the management of nuclear waste in October 2004 at its Annual General Meeting in Hull.

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	These are: • The idea that radioactive waste can be "disposed" of be rejected in favour of radioactive waste management; • Any process or activity that involves new or additional radioactive discharges into the environment be opposed, as this is potentially harmful to the human and natural environment; • The policy of 'dilute and disperse' as a form of radioactive waste management (i.e. discharges into the sea or atmosphere) be rejected in favour of a policy of 'concentrate and contain' (i.e. store safely on-site); • The principle of waste minimisation be supported; • The unnecessary transport of radioactive and other hazardous wastes be opposed; • Wastes should ideally be managed on-site where produced (or as near as possible to the site) in a facility that allows monitoring and retrieval of the wastes. NFLA note that there are 5 Principles used in the Agencies guidance document which are relevant to its own environmental principles. These can be summarised as: 1. The site must provide protection to people and the environment, to the national standard applicable at the time. 2. Doses should be as low as reasonably achievable (ALARA). This optimisation should take into account economic and societal factors and the need to manage radiological risks to other living organisms and any associated non-radiological hazards. Optimisation needs to be viewed as part of a bigger picture, recognising that there will be competing claims for limited funds, and that nothing is completely risk free. 3. People and the environment need to be protected against non-radiological hazards to a level consistent with national standards applicable at the time. 4. There shouldn't be an unreasonable reliance on human action to protect people and the environment against radiological and any associated non-radiological hazards 5. A process that is open and inclusive shall be used to bring the site to a condition at which it can be released from radioactive substances regulation.
The Agencies believe that our guidance is in accord with most of the NFLA environmental principles. We are confident that in implementing our draft guidance we will protect both people and the environment, by ensuring that operators of nuclear site manage their radioactive waste in an optimised way taking account of site specific considerations.	

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The Agencies believe that our guidance is in accord with most of the NFLA environmental principles. We are confident that in implementing our draft guidance we will protect both people and the environment, by ensuring that operators of nuclear site manage their radioactive waste in an optimised way taking account of site specific considerations.	
16	**The Proposals** NFLA notes that the consultation is seeking views on the requirements for releasing sites from radioactive substances regulation (RSR). A site which is regulated shouldn't be giving a radiation dose to members of the public above the internationally recognised maximum recommended limit of 1 millisievert (mSv), and in fact should be kept below 0.3 mSv from each source in a specific area, or at a single site where there are

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	multiple facilities, and 0.5mSv from a single site with multiple sources. NFLA also notes that the Office for Nuclear Regulation (ONR) has also set a Basic Safety Objective of 0.02 mSv as a target for new nuclear installations, or waste facilities. (1) So it seems safe to assume that any site which is applying for release from RSR should not be giving a dose above 0.02mSv/yr.
The 0.3 mSv value relates to the normal operation of a facility. It cannot be taken to apply to doses from closed sites seeking release from regulation where our risk guidance level applies, which is equivalent to an approximate dose of 0.02 mSv/yr.	
16	**The Proposals cont.** The Operator is expected to produce a Site Wide Environmental Safety Case (SWESC) to demonstrate either that the site will be available for unrestricted use after the permit is surrendered, or that it will be available for restricted use with a "suitable body" exercising control. If a site is available only for restricted use initially, this is likely to be to allow for natural processes including radioactive decay, dilution and dispersion. Site operators also have to produce a Waste Management Plan (WMP) which is closely allied to the SWESC, and shows how the waste on-site is going to be dealt with. Once the site operator has completed all planned work involving radioactive substances – in other words the WMP has been fully implemented - the risks to people and the environment presented by any remaining radioactive substances (in the form of residual contamination, or authorised on-site disposals), may be sufficiently low to allow for immediate unrestricted use of the site or a period of restricted use, as part of an optimised plan for returning the site to a state where no control of the site is necessary for the purpose of protecting people and the environment. The Environment Agencies say they would be unlikely to accept a proposal for a period of restricted use lasting longer than 300 years from the end of planned operations involving radioactive substances. In that event we would expect the operator to undertake further work so as to reduce the proposed period of restricted use to less than 300 years. NFLA comment on this matter: There are three main concerns with what is being proposed. Firstly the way of assessing the radiological hazard of a site which has been released from radioactive substances regulation appears to be too flexible.
We do not agree with this comment. We have set tight standards in relation to the outcomes to be achieved while allowing operators flexibility in terms of how those outcomes are achieved. We consider this the correct approach.	

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16	**The Proposals cont.** Secondly, it is not clear who is expected to regulate a site which is being made available for restricted use. Local authorities are unlikely to have the resources to regulate such a site.
The GRR does not seek to identify the nature of the controls or who may exercise them, recognising that such controls may take many forms. It is for the operator to identify the proposed controls and to argue how these will ensure and necessary restrictions on use.	
16	Thirdly, the proposals appear to allow for the unrestricted use of sites which may have nuclear waste buried and which could be capable of administering doses of up to 20mSv/yr if human intrusion occurs. It is the NFLA view that such sites should remain subject to radioactive substances regulation. 6. References (1) SAPS 2014, paragraph 716. http://www.onr.org.uk/saps/saps2014.pdf (2) Near-surface Disposal Facilities on Land for Solid Radioactive Wastes Guidance on Requirements for Authorisation, Environment Agencies, February 2009 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296507/geho0209bpjl-e-e.pdf (3) HSE Criterion for De-Licensing Nuclear Sites, May 2005 http://www.onr.org.uk/delicensing.pdf (4) Nuclear Engineering International, February 2004, 'Decommission Improbable' by Ian Jackson.
Radioactive waste comes in many forms with different associated risks that last for different periods of time. Regulation of radioactive waste disposals is undertaken using risk based assessments that will inform when such sites might be used for other purposes. The main aim of our guidance is to ensure that where knowledge of such sites is lost in the far future no significant consequences are suffered by future occupiers of such a site.	
18	We understand from our discussions with the environment agencies that the intention is for the HIDGL to be applied as an initial 'screening' criterion. Licensees' proposals meeting the HIDGL would then be considered against the RGL, and if successful would then undergo optimisation. We agree that this is a logical sequence for applying these three main regulatory requirements in the GRR, and recommend that the finalised document should more clearly outline this approach.
The Agencies would like to clarify that a sequential application of the different guidance levels is not the approach that should be taken. The human	

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intrusion guidance levels and the risk guidance level are intended to address different exposure mechanisms, post-release from RSR, and the GRR states that operators must demonstrate that their plans meet each and every one of our requirements. However, we will review our guidance to see if we can provide greater clarity with respect to this issue.	
20	Firstly, there needs to be a requirement to meet the “polluter pays” principle. It should be clear that the costs of any ongoing control and regulation, including monitoring, are to be met by the operator and they need to be prepared to pay for retrieval if necessary. Provision should be made by setting up a special fund to protect the public purse from the possibility of private companies going into liquidation.
This is not a matter for this guidance or the Agencies	
20	Secondly, comparing the Near Surface GRA with this latest consultation document – the GRR – it is not clear where the line is to be drawn between a near-surface disposal site and a de-licensed nuclear site.
We are unclear what point this comment addresses; a disposal facility is an engineered facility for waste disposal, which may or may not be on a nuclear site. The Near-surface GRA allows for a disposal site to be locates either on or off a nuclear licensed site; where a purpose built facility to be constructed on or close to a nuclear licensed site the GRR ensures that it is taken account of as part of the safety case for decommissioning the site.	
20	Members of SCCORS would also like to voice their concern in relation to the Scottish Government’s policy on surface or near surface disposal with the ability to retrieve. As the paper acknowledges the waste could potentially be 'accidently” or “non accidentally” accessed as the case may be. There is therefore a concern that disposal/handling of waste may actually be detrimental to national security.
Matters of Government policy are out with the scope of this guidance.	