Department for Business, Energy & Industrial Strategy

Environmental Protection Act 1990: Part IIA

Radioactive Contaminated Land Statutory Guidance

Presented to Parliament pursuant to section 78YA of the Environmental Protection Act 1990 as amended by section 57 of the Environment Act 1995.

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Introduction

1. This statutory guidance ("this Guidance") is issued by the Secretary of State for Business, Energy & Industrial Strategy in accordance with section 78YA of the Environmental Protection Act 1990 ("the 1990 Act") as it applies to harm attributable to radioactivity. It applies only to radioactive contamination of land and it applies only in England.

2. Section 57 of the Environment Act 1995 created Part 2A of the Environmental Protection Act 1990 which establishes a legal framework for dealing with nonradioactive contaminated land in England. Section 78YC gives powers to the Secretary of State to make regulations applying the Part 2A regime, with any necessary modifications, for the purpose of dealing with harm attributable to radioactivity. These powers have been exercised in the Radioactive Contaminated Land (Enabling Powers) (England) Regulations 2005[1] and the Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006[2] to establish a legal framework for dealing with radioactive contaminated land in England.

3. This Guidance is intended to explain how local authorities should implement the radioactive contaminated land regime, including how they should go about deciding whether land is "contaminated land" in the legal sense of the term. It also elaborates on the remediation provisions of Part 2A, such as the goals of remediation, and how the Environment Agency (as the enforcing authority for radioactive contaminated land) should ensure that remediation requirements are reasonable. This Guidance also explains specific aspects of the Part 2A liability arrangements, and the process by which the Environment Agency may recover the costs of remediation from liable parties in certain circumstances.

4. This Guidance is legally binding on local authorities and the Environment Agency and relevant sections of Part 2A which form the basis of this Guidance are mentioned in specific sections below. This Guidance has been subject to Parliamentary scrutiny under the negative resolution parliamentary procedure,

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[1] SI 2005/3467. These Regulations have been amended by the Radioactive Contaminated Land (Enabling Powers and Modification of Enactments) (England) (Amendment) Regulations 2010 (SI 2010/2147) and the Radioactive Contaminated Land (Enabling Powers and Modification of Enactments) (England) (Amendment) Regulations 2018 (SI 2018/429).

[2] SI 2006/1379. These Regulations have been amended by the Radioactive Contaminated Land (Modification of Enactments) (England) (Amendment) Regulations 2007 (SI 2007/3245); the Radioactive Contaminated Land (Modification of Enactments) (England) (Amendment) Regulations 2008 (SI 2008/520 and the Radioactive Contaminated Land (Enabling Powers and Modification of Enactments) (England) (Amendment) Regulations 2010 (SI 2010/2147), Nuclear Installations (Liability for Damage) Order 2016 (SI.2016/562) which haven't yet come into force and the Radioactive Contaminated Land (Enabling Powers and Modification of Enactments) (England) (Amendment) Regulations 2018 (SI 2018/429).

in accordance with section 78YA of the 1990 Act. The Environment Agency have been consulted in relation to this Guidance, as required by section 78YA(1) of the 1990 Act. This Guidance should be read in accordance with Part 2A.

5. This Guidance replaces the previous Radioactive Contaminated Land Statutory Guidance as it applies to harm attributable to radioactivity which was published in 2012, and was issued in accordance with section 78YA of the Environmental Protection Act 1990 as amended by section 57 of the Environment Act 1995. As it relates to radioactive contaminated land, the previous statutory guidance is obsolete from the date that this Guidance is issued.

6. Non-radioactive contamination of land is covered by separate statutory guidance issued by the Secretary of State for Environment, Food and Rural Affairs. In the event that land is affected by both radioactive and non-radioactive contaminants, both sets of statutory guidance will apply, and local authorities and the Environment Agency should decide what is a reasonable course of action having due regard for the primary relevant legislation and, in the case of local authorities, advice from the Environment Agency.

Limits of the radioactive contaminated land regime

7. The radioactive contaminated land regime and therefore this Guidance only cover land where radioactivity is present as a result of a past activity or as a result of the after-effects of an emergency. It does not apply to current practices and natural background radiation[3]; land containing radionuclides present only as a result of natural processes are therefore excluded from the provisions of the regulations.

8. The duties under the regime and therefore this Guidance also do not apply in relation to land within a nuclear site or an MOD nuclear site or where remediation is to be undertaken by a local authority in implementation of an emergency plan under regulation 13(2) of the Radiation (Emergency Preparedness and Public Information) Regulations 2001[4]. The Government has consulted separately on proposals to reflect the 2013 Basic Safety Standards Directive (2013 BSSD) and strengthen those Regulations.

[3] This limit arises by virtue of the definition of “substance” in section 78A(9) of the 1990 Act.

Terminology

9. Most of the specific terms used in this Guidance are defined within the text. Some general aspects of terminology are:

- "harm attributable to radioactivity" means harm so far as attributable to any radioactivity possessed by any substances (as referred to in section 78YC of the 1990 Act).

- "Part 2A" means Part 2A of the 1990 Act (as extended and modified by the Radioactive Contaminated Land (Modification of Enactments)(England) Regulations 2006) for the purpose of dealing with harm attributable to radioactivity (as described in paragraph 2 above), unless otherwise stated. References to sections of the 1990 Act are references to those sections as similarly extended and modified, unless otherwise stated.

- "radioactive contaminated land" is used to mean land which meets the definition of "contaminated land" in Part 2A. Other terms, such as "land affected by contaminants" "land affected by contamination" or "land contamination", are used to describe the much broader categories of land where radioactive contaminants are present but usually not at a sufficient level of risk to qualify as radioactive contaminated land.

- "the 1990 Act" means the Environmental Protection Act 1990 as amended.

- "the radioactive contaminated land regime" is used to mean the regime established by Part 2A.

- The terms "contaminant", "pollutant" and "substance" as used in this Guidance have the same meaning – i.e. they all mean a substance relevant to the Part 2A regime which is in, on or under the land and which has the potential to cause harm to a receptor. This Guidance mainly uses the term "contaminant" and associated terms such as "contaminant linkage". However, it recognises that some non-statutory technical guidance relevant to land contamination uses alternative terms such as "pollutant", "substance" and associated terms that in effect mean the same thing. Further, as explained in Section 3, in this Guidance the terms "contaminant", "pollutant" and "substance" cover only substances containing radionuclides which have been processed as part of a past practice or past work activity or have resulted from the after-effects of an emergency[5]. Associated terms such as "contaminant

[5] Section 78A(9) of the 1990 Act.

linkage" are similarly limited. Where the intention is to refer to non-radioactive contaminants and associated terms, this is expressly stated.

- The term "Basic Safety Standards Directive" (2013 BSSD) means the Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for the protection against the dangers arising from ionising radiation.

- "unacceptable risk" means a risk of such a nature that it would give grounds for land to be considered radioactive contaminated land under Part 2A.

10. Some terms, such as 'practice', have specific technical meanings in the context of radiological protection which are not necessarily the same as the ordinary meaning that can be found in the Oxford English Dictionary. Definitions of these terms, as understood and employed by the radiological protection community (and appearing in legislation) can be found in the Glossary at the end of this Guidance.

Section 1: Objectives of the Part 2A Regime

1.1 This Guidance should be read and applied with Part 2A and the following points in mind.

1.2 Historical contamination of land by radionuclides from anthropogenic activity has in many cases occurred due to a lack of understanding of the hazards posed by radioactive materials at the time. Radioactive substances have been used for a wide variety of purposes since the start of the twentieth century, but most have only been subject to regulation since 1963, the year in which the 1960 Radioactive Substances Act came into force. Industrial activities have involved the use of materials containing radioactivity in a variety of different contexts: (a) where radioactive materials have been employed for their radioactive properties (for example, luminising works); (b) where radioactive properties are incidental in materials that are used for their non-radioactive properties (for example, gas mantle production); and (c) where radioactive materials have been inadvertently handled, or escaped accidentally (for example, lead mining).

1.3 Little information is available on the scale of radioactive contamination outside of nuclear sites. What information is available is subject to large uncertainties. A study undertaken on behalf of Defra, the Environment Agency and the Welsh Assembly Government indicated that the likely number of sites in England and Wales where activities took place capable of giving rise to radioactive contamination, if a contaminant linkage was in place, was in the range 100 – 1000 and most likely to be in the range 150 – 250[6].

1.4 The objectives of the radioactive contaminated land regime under Part 2A are broadly the same as those of the non-radioactive contaminated land regime, namely to provide a system for the identification and remediation of land where contamination is causing unacceptable risks. However, while the non-radioactive contaminated land regime deals with the unacceptable risks posed by land contamination to human health and the environment, the radioactive contaminated land regime only takes into account unacceptable risks to human

[6] Environment Agency “Indicators for Land Contamination” – Science report SC030039/SR Appendix A. 2005.

health. In addition, the radioactive contaminated land regime implements a part of the 2013 BSSD[7].

1.5 Under Part 2A the starting point should be that land is not radioactive contaminated land unless there is reason to consider otherwise. Only land where unacceptable risks are clearly identified, after a risk assessment has been undertaken in accordance with this Guidance, should be considered as meeting the Part 2A definition of "contaminated land".

1.6 The overarching objectives of the Government's policy on radioactive contaminated land and the Part 2A regime are:

(a) To identify and remove unacceptable risks to human health.

(b) To seek to ensure that radioactive contaminated land is made suitable for its current use.

(c) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development.

(d) To implement Articles 73, 100, 101, 102 of the 2013 BSSD in so far as they relate to radioactively contaminated land. These articles impose certain requirements when dealing with land affected by radioactive contaminants as a result of a past practice or past work activity or, where appropriate, the after-effects of an emergency.

1.7 The Radioactive Contaminated Land Regimes (made up of the Environmental Protection Act (c.43.) 1990, Radioactive Contaminated Land Regulations and statutory guidance for each Devolved Administration) form the UK's optimised protection strategy for managing radioactive contaminated land that falls within the scope of this guidance and, as such, provide one means of implementing Article 73.1 of the 2013 BSSD[8]. They also fulfil the requirement of Article 101

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[7] On 23 June 2016, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. Until exit negotiations are concluded, the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the Government will continue to negotiate, implement and apply EU legislation. The outcome of these negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

[8] The Government has introduced a new duty on the Secretary of State (or appropriate minister for the devolved administrations) to ensure that reference levels are set for emergency and existing exposure situations [insert reference to SI when available]. The RCL Regime and the standard of remediation will provide the means of meeting this new duty in relation to land which has been designated as RCL.

of the 2013 BSSD to establish a management strategy that includes objectives and appropriate reference levels, to ensure the appropriate management of contaminated land in line with the risks and with the effectiveness of protective measures. The RCL regime also transposes Article 102.4(a) in assigning responsibility for implementation of the management strategy and coverage of some of the elements listed.

1.8 In the context of the RCL regime, a range of reference levels[9] will be used as part of a remediation strategy once land has been determined as RCL. The objectives for remediation are described in section 6.5. The aim would be to reduce exposure so that doses are below the harm threshold (i.e. the value of 3 millisieverts per annum or equivalent described in section 4.4) unless the Environment Agency considers that this is not practicable or reasonable. The RCL regime already embeds the concepts of justification and optimisation required by the 2013 BSSD.

1.9 The 2013 BSSD introduces the terms “remedial measures” (see Glossary) and “protective measures” (see Glossary). The 1996 BSSD term “intervention”[10] used previously throughout the RCL regime covers both “remedial measures” and “protective measures” as defined in the 2013 BSSD. In order to update the terminology used within the RCL regime the term intervention has been replaced throughout the regime by the terms “protective or remedial measures”. All terms are encompassed by the broader RCL term “remediation” that also includes other actions such as monitoring and assessment.

1.10 Local authorities and the Environment Agency should seek to use Part 2A only where no alternative solution exists. The Part 2A regime is one of several ways in which land contamination can be addressed. For example, land contamination can be addressed when land is developed (or redeveloped) under the planning system, during the building control process, or where action is taken independently by landowners. Other legislative regimes may provide a means of dealing with land contamination issues, such as building regulations and environmental permitting.

1.11 The powers available under the radioactive contaminated land regime could be applied to land contaminated as a result of the after-effects of an emergency,

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[9] "reference level" means in an emergency exposure situation or in an existing exposure situation, the level of effective dose or equivalent dose or activity concentration above which it is judged inappropriate to allow exposures to occur as a result of that exposure situation, even though it is not a limit that may not be exceeded.

[10] “Intervention” is defined in the 1996 BSSD as “a human activity that prevents or decreases the exposure of individuals to radiation from sources which are not part of a practice or which are out of control, by acting on sources, transmission pathways and individuals themselves.”

but would only usually in practice be brought to bear after all other emergency action taken under REPPIR and action taken as part of the recovery phase had been exhausted.

1.12 Under Part 2A, local authorities and the Environment Agency may need to decide whether and how to act in situations where such decisions are not straightforward and where there may be unavoidable uncertainty underlying some of the facts of each case. In so doing, the local authorities and the Environment Agency should use their judgement to strike a reasonable balance between: (a) dealing with risks raised by radioactive contaminants in land and the benefits of remediating land to remove or reduce those risks; and (b) the potential impacts of taking action including financial costs to whoever will pay for remediation (including the taxpayer where relevant), health and environmental impacts of any protective or remedial measures, property blight, and burdens on affected people. Local authorities and the Environment Agency should take a precautionary approach to the risks raised by radioactive contamination, whilst avoiding a disproportionate approach given the circumstances of each case. The aim should be to consider the various benefits and costs of taking action with a view to ensuring that the regime produces net benefits, taking account of local circumstances.

Section 2: Local authority inspection duties

2.1 Part 2A requires that local authorities cause their areas to be inspected with a view to identifying radioactive contaminated land, and to do this in accordance with this Guidance. Relevant sections of the 1990 Act include:

(a) Section 78B(1): Where a local authority considers that there are reasonable grounds for believing that any land may be contaminated, it shall cause the land to be inspected for the purpose of- (a) identifying whether it is contaminated land; and (b) enabling the authority to decide whether the land is land which is required to be designated as a special site.

(b) Section 78B(1A): The fact that substances have been or are present on the land shall not of itself be taken to be reasonable grounds for the purposes of subsection (1).

(c) Section 78B(2): In performing [these] functions .... a local authority shall act in accordance with any guidance issued for the purpose by the Secretary of State.

Reasonable grounds approach to inspection

2.2 The trigger for a local authority to cause land to be inspected is where it considers that there are *reasonable grounds* for believing that land may be radioactive contaminated land. This is a more limited inspection duty than that which applies under the non-radioactive contaminated land regime. A local authority will have such reasonable grounds where it has knowledge of relevant information relating to (a) a former historical land use, past practice, past work activity or emergency, capable of causing lasting exposure giving rise to the radiation doses set out in paragraph 4.4 below; or (b) levels of contamination present on the land arising from a past practice, past work activity or emergency, capable of causing lasting exposure giving rise to the radiation doses set out in paragraph 4.4 below.

2.3 The “relevant information” referred to above means information that is appropriate and authoritative and may, for example, include information held by the local authority, including information already gathered as part of its strategic approach to Part 2A as it applies to non-radioactive contamination or as part of the town and country planning process; or information received from a regulatory body such as the Environment Agency or the Health and Safety Executive; or information received through the local authority’s role in the emergency response or recovery phase.

Detailed Inspection of particular areas of land

2.4 If the local authority considers that there are reasonable grounds for believing land may be radioactive contaminated land, it should inspect the land to obtain sufficient information to decide whether it is radioactive contaminated land, having regard to section 3 of this Guidance.

2.5 The local authority should consult the landowner before inspecting the land unless there is a particular reason why this is not possible, for example because it has not been possible to identify or locate the landowner. Where the owner refuses access, or the landowner cannot be found, the authority should consider using statutory powers of entry.

2.6 If the local authority intends to carry out an inspection using statutory powers of entry under section 108 of the Environment Act 1995 (as modified by the Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006) it should first be satisfied that there is a reasonable possibility that a significant contaminant linkage may exist on the land. The authority should not use statutory powers of entry to undertake intrusive investigations, including the taking of sub-surface samples, if:

(a) It has already been provided with appropriate, detailed information on the condition of the land (e.g. by the Environment Agency or some other person such as the owner of the land) which provides sufficient

information for the authority to decide whether or not the land is radioactive contaminated land; or

(b) a relevant person (e.g. the owner of the land, or a person who may be liable for the contamination) offers to provide such information within a reasonable and specified time, and then provides such information within that time.

2.7 The local authority should carry out any investigation in accordance with appropriate good practice technical procedures for such investigation. If at any stage the local authority considers, on the basis of information obtained from inspection activities, that there is no longer a reasonable possibility that a significant contaminant linkage exists on the land, the authority should not carry out any further investigation in relation to that linkage.
If land is radioactive contaminated land it will fall within the definition of a special site prescribed in regulation 2 of the Contaminated Land (England) Regulations 2006[11] and the Environment Agency will be the enforcing authority in respect of that land. Therefore, if the local authority considers that there are reasonable grounds for believing land may be radioactive contaminated land on the basis set out in paragraph 2.2, it should consult the Environment Agency, and, subject to the Environment Agency's advice and agreement, the local authority should arrange for the Agency to carry out any intrusive investigation of the land on behalf of the local authority. If the Environment Agency is to carry out such an investigation, the local authority should where necessary authorise a person nominated by the Agency to exercise the powers of entry conferred by section 108 of the Environment Act 1995 as modified.

2.8 Where the Environment Agency carries out an inspection on behalf of a local authority, the authority's regulatory functions under section 78B and 78C of the 1990 Act (including the inspection duty and the decision as to whether land is radioactive contaminated land) and the need to comply with the related provisions of this Guidance remain the sole responsibility of the local authority. The Environment Agency should advise the local authority of its findings in order to enable the authority to carry out these functions. The Environment Agency should carry out any intrusive investigations in accordance with appropriate good practice technical procedures for such investigations.

[11] SI 2006/1380

Section 3: Risk assessment

3.1 Part 2A takes a risk based approach to defining radioactive contaminated land. For the purposes of this Guidance “risk” means the combination of: (a) the likelihood that harm will occur as a result of contaminants in, on or under the land; and (b) the scale and seriousness of such harm if it did occur.

3.2 As land which is radioactive contaminated land would qualify as a special site for which the Environment Agency would be the enforcing authority, the local authority should consult the Environment Agency about the risk assessment and, subject to the Agency’s advice and agreement, should arrange for the Agency to carry out the risk assessment on its behalf. However, as already stated in paragraph 2.10, where the Environment Agency acts on behalf of a local authority, the authority’s regulatory functions under sections 78B and 78C of the 1990 Act and compliance with the related provisions of this Guidance remain the sole responsibility of the local authority.

3.3 Local authorities and the Environment Agency should have regard to good practice guidance on risk assessment and they should ensure they undertake risk assessment in a way which delivers the results needed to make robust decisions in line Part 2A and this Guidance.

3.4 Risk assessments should be based on information which is: (a) scientifically based; (b) authoritative; (c) relevant to the assessment of risks arising from the presence of contaminants in soil; and (d) appropriate to inform regulatory decisions in accordance with Part 2A and this Guidance.

Current use

3.5 Under Part 2A, risks should be considered only in relation to the current use of the land. For the purposes of this Guidance, the "current use" means:

(a) The use which is currently being made of the land.

(b) Reasonably likely future uses of the land that would not require a new or amended grant of planning permission.

(c) Any temporary use to which the land is put, or is likely to be put, from time to time within the bounds of current planning permission.

(d) Likely informal use of the land, for example children playing on the land, whether authorised by the owners or occupiers or not.

(e) In the case of agricultural land, the current agricultural use should not be taken to extend beyond the growing or rearing of the crops or animals which are habitually grown or reared on the land.

3.6 In assessing risks the local authority should disregard receptors which are not likely to be present given the current use of the land or other land which might be affected. In considering the timescale over which a risk should be assessed the authority should take into account any evidence that the current use of the land will cease in the relevant foreseeable future (e.g. within the period of exposure assumed for the receptors in a contaminant linkage).

3.7 When considering risks in relation to any future use or development which falls within the description of a "current use", the local authority should assume that the future use or development would be carried out in accordance with any existing planning permission. In particular, the local authority should assume:

(a) That any remediation which is the subject of a condition attached to that planning permission, or is the subject of any planning obligation, will be carried out in accordance with that permission or obligation.

(b) Where a planning permission has been given subject to conditions which require steps to be taken to prevent problems which might be caused by contamination, and those steps are to be approved by the local planning authority, that the local planning authority will ensure that those steps include adequate remediation.

Contaminant linkages

3.8 Under Part 2A, for a relevant risk to exist there needs to be one or more contaminant-pathway-receptor linkage(s) - “contaminant linkage” by which a receptor might be affected by the contaminants in question. In other words, for a risk to exist there must be contaminants present in, on or under the ground in a form and quantity that poses a hazard, and one or more pathways by which they might harm people. For the purposes of this Guidance:

(a) A “contaminant” is a substance which is in, on or under the land and which has the potential to cause harm to a receptor. Further, in this Guidance a “contaminant” is limited to any substance containing radionuclides which have resulted from the after-effects of an emergency or have been processed as part of a past practice or past work activity. This reflects the limitation in the definition of “substance” in the

radioactive contaminated land regime[12]. Where the intention is to refer to non-radioactive contaminants or substances, this is expressly stated.

(b) A "receptor" is something that could be adversely affected by a contaminant. Under the radioactive contaminated land regime this is limited to human beings only.

(c) A "pathway" is a means by which a receptor is or might be affected by a contaminant.

3.9 The term "contaminant linkage" means the relationship between a contaminant, a pathway and a receptor. All three elements of a contaminant linkage must exist in relation to particular land before the land can be considered potentially to be radioactive contaminated land under Part 2A, including evidence of the actual presence of contaminants. The term "significant contaminant linkage", as used in this Guidance, means a contaminant linkage which gives rise to a level of risk sufficient to justify a piece of land being determined as radioactive contaminated land. The term "significant contaminant" means the contaminant which forms part of a significant contaminant linkage.

3.10 In considering contaminant linkages, the local authority should consider whether:

(a) The existence of several different potential pathways linking one or more potential contaminants to a particular receptor, may result in a significant contaminant linkage.

(b) There is more than one significant contaminant linkage on any land. If there are, the authority should consider whether each should be dealt with separately, since different people may be responsible for the remediation of individual contaminant linkages.

The process of risk assessment

3.11 The process of risk assessment involves understanding the risks presented by land, and the associated uncertainties. In practice, this understanding is

[12] See the definition of "substance" in section 78A of the 1990 Act set out at paragraph 4.2 below. This definition was amended by the Radioactive Contaminated Land (Enabling Powers and Modification of Enactments) (England) (Amendment) Regulations 2010. The effect of the amendment was to remove the previous exclusion of radon gas and certain radionuclides form the definition of "substance". However, even though the exclusion has been removed, these substances are only covered to the extent that they have resulted from the after-effects of an emergency or have been processed as part of a past practice or work activity – naturally occurring substances (such as naturally occurring radon) are not covered.

usually developed and communicated in the form of a “conceptual model”. The understanding of the risks is developed through a staged approach to risk assessment, often involving a preliminary risk assessment informed by desk-based study; a site visit and walkover; a generic quantitative risk assessment; and various stages of more detailed quantitative risk assessment. The process should normally continue until it is possible for the local authority to decide: (a) that there is insufficient evidence that the land might be radioactive contaminated land to justify further inspection and assessment; and/or (b) whether or not the land is radioactive contaminated land.

3.12 As a general rule, inspections should be conducted as quickly, and with as little disruption as reasonably possible whilst ensuring that a sufficiently robust assessment is carried out. The local authority should seek to avoid or minimise the impacts of long inspections on affected persons, in particular significant disruption and stress to directly affected members of the public in the case of inspections involving residential land.

3.13 In undertaking risk assessments, local authorities should ensure that the time and resource put into assessment is sufficient to provide a robust basis for regulatory decisions. In some cases, there may be a need for detailed and lengthy assessments, particularly in complex cases where regulatory decisions are not straightforward. However, in other cases a less detailed and shorter assessment may be appropriate. For example, if it becomes evident early in risk assessment that there is clearly a high or low risk (to the extent that the decision on whether or not land is radioactive contaminated land is straightforward) the authority should normally take the decision on the basis of this evidence alone.

Recognising and dealing with uncertainty

3.14 All risk assessments of potentially contaminated land sites will involve uncertainty, for example due to scientific uncertainty over the effects of substances, and the assumptions that lie behind predicting what might happen in the future. When building an understanding of the risks relating to land, the local authority should recognise that uncertainty exists. The authority should seek to minimise uncertainty as far as it considers to be relevant, reasonable and practical; and it should recognise remaining uncertainty, which is likely to exist in almost all cases. It should be aware of the assumptions and estimates that underlie the risk assessment, and the effect of these on its conclusions.

3.15 The uncertainty underlying risk assessments means there is unlikely to be any single “correct” conclusion on precisely what is the level of risk posed by the land, and it is possible that different suitably qualified people could come to different conclusions when presented with the same information. It is for the local authority to use its judgement to form a reasonable view of what it

considers the risks to be on the basis of a robust assessment of available evidence in line with this Guidance.

Risk summaries

3.16 Once the local authority has completed its detailed inspection and assessment of particular land it should be satisfied it has sufficient understanding of the risks to take relevant regulatory decisions.

3.17 The local authority should produce a risk summary for any land where, on the basis of the risk assessment, the authority considers it is likely that the land in question may be determined as radioactive contaminated land. The risk summary should explain the local authority's understanding of the risks and other factors the authority considers to be relevant. The authority should seek to ensure that the risk summary is understandable to the layperson, including the owners of the land and members of the public who may be affected by the decision. The authority should not proceed to formal determination of land as radioactive contaminated land unless a risk summary has been prepared.

3.18 Risk summaries should as a minimum include:

(a) A summary of the local authority's understanding of the risks, including a description of: the contaminants involved; the identified contaminant linkage(s), or a summary of such linkages; the potential impact(s); the estimated possibility that the impact(s) may occur; and the timescale over which the risk may become manifest.

(b) A description of the local authority's understanding of the uncertainties behind the assessment.

(c) A description of the possible remediation. This need not be a detailed appraisal, but it should include a description of broadly what remediation might entail; how long it might take; likely effects of remediation works on local people and businesses; how much difference it might be expected to make to the risks posed by the land; and the authority's initial assessment of whether remediation would be likely to produce a net benefit, having regard to the broad objectives of the regime set out in Section 1. The authority should seek the views of the Environment Agency, and take any views provided into account, in producing this description.

3.19 In some circumstances, local authorities are not required to produce risk summaries. These circumstances are:

(a) land which will not be determined as radioactive contaminated land. In such cases the authority should have regard to paragraph 5.2 of this Guidance.

(b) land determined as radioactive contaminated land before this Guidance came into force.

Section 4: The definition of radioactive contaminated land

4.1 Part 2A of the 1990 Act defines “contaminated land” (referred to as radioactive contaminated land in this Guidance), and provides for the Secretary of State to issue guidance (i.e. this Guidance) on how local authorities should determine which land is radioactive contaminated land and which is not.

4.2 Relevant sections of the Act include:

- Section 78A(2): “contaminated land” is any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that – (a) harm is being caused or (b) there is a significant possibility of harm being caused.

- Section 78A(4): “harm” means lasting exposure to any person resulting from the after-effects of an emergency, past practice or past work activity (except in section 78E(4A)).

- Section 78A(5): the questions – (a) whether harm is being caused, and (b) whether the possibility of harm being caused is “significant”, shall be determined in accordance with guidance issued for the purpose by the Secretary of State in accordance with section 78YA below.

- Section 78A(6): without prejudice to the guidance that may be issued under subsection (5) above, guidance under paragraph (a) of that subsection may make provision for different degrees and descriptions of harm; and guidance under paragraph (b) of that subsection may make provision for different degrees of possibility to be regarded as “significant” (or as not being “significant”) in relation to different descriptions of harm.

- Section 78A(9): “substance” means, whether in solid or liquid form or in the form of a gas vapour, any substance containing radionuclides which have resulted from the after-effects of an emergency or have been processed as part of a past practice or past work activity.

Section 4a: Harm

4.3 This section of the Guidance sets out the basis on which a local authority should determine that harm is being caused and therefore the land is radioactive contaminated land. In particular, it sets out the dose criteria that should be used to determine whether harm is being caused. In assessing harm, the local authority should act in accordance with the advice on risk assessment in section 3 and the guidance in this section.

4.4 The local authority should regard harm as being caused where lasting exposure gives rise to doses that exceed one or more of the following: (a) an effective dose of 3 millisieverts per annum; (b) an equivalent dose to the lens of the eye of 15 millisieverts per annum; or (c) an equivalent dose to the skin of 50 millisieverts per annum. The skin limit shall apply to the dose averaged over any area of 1cm^2, regardless of the area exposed.

4.5 The estimation of an effective dose and an equivalent dose should be undertaken in accordance with Article 13 of the 2013 BSSD. The estimation of an effective or equivalent annual dose should not include the local background level of radiation from the natural environment.

4.6 The local authority should determine that land is radioactive contaminated land on the basis that such harm is being caused where: (a) it has carried out a scientific and technical assessment of the dose arising from the pollutant linkage, according to relevant, appropriate, authoritative and scientifically based guidance on such assessments, having regard to any advice provided by the Environment Agency; (b) that assessment shows that such harm is being caused; and (c) there are no suitable and sufficient risk management arrangements currently in place to prevent such harm.

4.7 In following guidance on the assessment of dose, the local authority should be satisfied that it is relevant to the circumstances of the contaminant linkage and land in question, and that any appropriate allowances have been made for particular circumstances.

4.8 To simplify such an assessment of dose, the local authority may use authoritative and scientifically based guideline values for concentrations of the potential contaminants in, on or under the land in contaminant linkages of the type concerned. If it does so, the local authority should be satisfied that: (a) an adequate scientific and technical assessment of the information on the potential contaminant, using the appropriate, authoritative and scientifically based guideline values, shows that harm is being caused; and (b) there are no suitable and sufficient risk management arrangements currently in place to prevent such harm.

4.9 In using any guideline values, the local authority should be satisfied that: (a) the guideline values are relevant to the judgement of whether the effects of the

contaminant linkage in question constitute harm; (b) the assumptions underlying the derivation of any numerical values in the guideline values (e.g. assumptions regarding soil conditions, the behaviour of contaminants, the existence of pathways, the land-use patterns and the presence of human beings) are relevant to the circumstances of the contaminant linkage in question; (c) any other conditions relevant to the use of the guideline values have been observed (e.g. the number of samples taken or the methods of preparation and analysis of those samples or radiation surveys); (d) appropriate adjustments have been made to allow for the differences between the circumstances of the land in question and any assumptions or other factors relating to the guideline values; and (e) the basis of derivation of the guideline values has taken into account the requirements to comply with the 2013 BSSD in paragraph 4.5 above.

4.10 The local authority should be prepared to reconsider any determination based on the use of guideline values if it is demonstrated to the authority's satisfaction that under some other more appropriate method of assessing the risks the local authority would not have determined that the land appeared to be radioactive contaminated land.

Section 4b: Significant possibility of harm

4.11 In assessing the significant possibility of harm, the local authority should act in accordance with the advice on risk assessment in section 3 and the guidance in this section.

4.12 This section of the Guidance sets out the basis on which a local authority should determine that there is a significant possibility of harm being caused and therefore the land is radioactive contaminated land. In particular, it sets out the degree of possibility of the harm being caused which will amount to a significant possibility.

4.13 In deciding whether or not a significant possibility of harm exists, the local authority should first understand the possibility of harm and the levels of certainty/uncertainty attached to that understanding before it goes on to decide whether or not the possibility of harm is significant.

4.14 The term "possibility of harm" should be taken as referring to a measure of the probability, or frequency, of the occurrence of circumstances which would lead to lasting exposure being caused where (a) the potential annual effective dose is below or equal to 50 millisieverts per annum; and (b) the potential annual equivalent dose to the lens of the eye and to the skin are below or equal to 15 millisieverts and 50 millisieverts respectively, the local authority should regard the possibility of harm as significant if, having regard to any uncertainties, the potential annual effective dose from any lasting exposure multiplied by the probability of the dose being received is greater than 3 millisieverts.

References to “potential annual effective dose” and “potential annual equivalent dose”, refer to doses that are not certain to occur.

4.15 Where the conditions in paragraph 4.4 are not met, the local authority should consider whether the possibility of harm being caused is significant on a case by case basis. In deciding whether the possibility of harm being caused is significant, the local authority should take into account relevant information concerning: (a) the potential annual effective dose; (b) any non-linearity in the dose-effect relationship for stochastic effects; (c) the potential annual equivalent dose to the skin and to the lens of the eye; (d) the nature and degree of any deterministic effects associated with the potential annual dose; (e) the probability of the dose being received; (f) the duration of the exposure and timescale within which the harm might occur; and (g) any uncertainties associated with (a) to (f) above. “Relevant information” means information which is appropriate, scientifically-based and authoritative.

4.16 The local authority should consider that conditions for determining that land is radioactive contaminated land on the basis that a significant possibility of harm would exist where: (a) the local authority has carried out an appropriate, scientific and technical assessment of the potential dose arising from the contaminant linkage, having regard to any advice provided by the Environment Agency, and taking into account the requirements of paragraph 4.5; (b) that assessment shows that there is a significant possibility of such harm being caused; and (c) there are no suitable and sufficient risk management arrangements currently in place to prevent such harm.

4.17 In following guidance on assessment of the potential dose, the local authority should be satisfied that it is relevant to the circumstances of the contaminant linkage and land in question, and that any appropriate allowances have been made for particular circumstances.

Section 5: Determination of radioactive contaminated land

5.1 Section 78A(2) of the 1990 Act says that in determining whether any land appears to be contaminated land, a local authority shall, *"...act in accordance with guidance issued by the Secretary of State...with respect to the manner in which that determination is to be made.*" This section provides such Guidance.

Deciding that land is not radioactive contaminated land

5.2 In implementing the Part 2A regime, the local authority may inspect land that it then considers is not radioactive contaminated land. In such cases, the authority should issue a written statement to that effect (rather than coming to no formal conclusion) to minimise unwarranted blight. The statement should make clear that on the basis of its assessment, the local authority has concluded that the land does not meet the definition of "contaminated land" under Part 2A. The local authority may choose to qualify its statement (e.g. given that its Part 2A risk assessment may only be relevant to the current use of the land).

5.3 The local authority should keep a record of its reasons for deciding that land is not radioactive contaminated land. The authority should inform the owners of the land of its conclusion and give them a copy of the written statement referred to in paragraph 5.2. The local authority should also consider informing other interested parties (for example occupiers of the land and owners and occupiers of neighbouring land) and consider whether to publish the statement. The statement should be issued within a timescale that the authority considers to be reasonable, having regard to the need to minimise unwarranted burdens to persons likely to be directly affected, in particular the landowner, and occupiers or users of the land where relevant.

Determining that land is radioactive contaminated land

5.4 The local authority has the sole responsibility for determining whether any land appears to be radioactive contaminated land. It cannot delegate this responsibility (except in accordance with section 101 of the Local Government Act 1972). However, in making such decisions the authority may rely on information or advice provided by another body such as the Environment Agency, or a suitably qualified experienced practitioner appointed for that purpose. This applies even where the Environment Agency has carried out the inspection of land on behalf of the local authority.

5.5 There are two possible grounds for the determination of land as radioactive contaminated land:

(a) Harm is being caused to a human being.

(b) There is a significant possibility of harm being caused to a human being.

5.6 Before making any determination, the local authority should have identified one or more significant contaminant linkage(s), and carried out a robust, appropriate, scientific and technical assessment of all the relevant and available evidence. If the authority considers that conditions for considering land to be radioactive contaminated land do not exist it should not decide that the land is radioactive contaminated land.

5.7 If land is determined to be radioactive contaminated land, it would qualify as a "special site" under the Contaminated Land (England) Regulations 2006, for which the Environment Agency would be the enforcing authority. Therefore, the local authority should consult the Environment Agency before deciding whether or not to determine the land, providing the Agency with a draft of the record of the determination that the authority is required to prepare in accordance with paragraphs 5.16 – 5.18 below. The local authority should take the Environment Agency's views into full consideration and it should strive to ensure it has the Agency's agreement to its decision (although the decision is for the local authority to make subject to the provisions of Part 2A and this Guidance).

Physical extent of land to be determined

5.8 It is for the local authority to decide the physical extent of land that should be determined. The authority should strive to ensure that there are grounds to consider that all the land in question can reasonably be considered to be radioactive contaminated land. In practice, often it is likely that contamination will not be uniformly spread across a site, and it may not be clear precisely where the boundaries of the contamination lie. In such cases the authority should use its judgement on the extent of land it might reasonably consider to be radioactive contaminated land.

5.9 The local authority should review its decision on the physical extent of the land to be determined (or that has been determined) if at a later date it becomes aware of relevant further information. For example, this may be the case if, during remediation, it becomes clear that the extent of contamination is significantly greater or less than was thought when the determination was made.

Sub-division of land for the purposes of determination

5.10 The local authority may sub-divide the relevant land for the purposes of determination by issuing separate determinations for smaller areas of land which form part of a larger area of radioactive contaminated land. In deciding whether (and if so how) to do this, the authority should take into account: (i) the nature of the contamination; (ii) the degree of risk posed, and whether the degree of risk varies across the land; (iii) the nature of the remediation which

might be required; (iv) the ownership of the land; (v) the likely identity of those who may bear responsibility for the remediation and (vi) the views of the Environment Agency concerning the desirability of a separate determination of part of the land.

Making determinations in urgent cases

5.11 If the local authority considers there is an urgent need to determine particular land, it should make the determination in a timescale it considers appropriate to the urgency of the situation.

Informing interested parties

5.12 Before making a determination, the local authority should inform the owners and occupiers of the land and any other person who appears to the authority to be liable to pay for remediation of its intention to determine the land (to the extent that the authority is aware of these parties at the time) unless the authority considers there is an overriding reason for not doing so. The authority should also consider:

(a) Whether to give such persons time to make representations (for example to seek clarification of the grounds for determination, or to propose a solution that might avoid the need for formal determination) taking into account: the broad aims of regime; the urgency of the situation; any need to avoid unwarranted delay; and any other factor the authority considers to be appropriate.

(b) Whether to inform other interested parties as it considers necessary, for example owners and occupiers of neighbouring land.

5.13 If the local authority determines land as radioactive contaminated land, it shall give notice of that fact to (a) the Environment Agency; (b) the owner of the land; (c) any person who appears to the authority to be in occupation of the whole or any part of the land; and (d) each person who appears to the authority to be an appropriate person; in accordance with section 78B(3) of Part 2A. In respect of point (d) this Guidance recognises that in some cases the authority may not have identified the appropriate person(s) at the time the determination is made, in which case the requirement to give notice to such persons would not apply.

Postponing determination

5.14 The local authority may postpone determination of radioactive contaminated land if the land owner or some other person undertakes to deal with the problem without determination, and the local authority is satisfied in consultation with the Environment Agency that the remediation will happen to an appropriate standard and timescale. If the local authority chooses to do this,

any agreement it enters into should not affect its ability to determine the land in future (e.g. if the person fails to carry out the remediation as agreed).

5.15 The local authority may postpone determination of radioactive contaminated land if a significant contaminant linkage would only exist if the circumstances of the land were to change in the future within the bounds of the current use of the land as described in paragraph 3.5 of this Guidance (e.g. if a temporarily interrupted pathway were to be reactivated). If the authority chooses to do this, it should keep the status of the land under review and take reasonable measures to ensure that the postponement does not create conditions under which significant risks could go unaddressed in future. Alternatively, the authority may decide to determine the land but postpone remediation.

Record of the determination of radioactive contaminated land

5.16 The local authority should prepare a written record of any determination that land is radioactive contaminated land. The record should clearly and accurately identify the location, boundaries and area of the land in question, making appropriate reference to Ordnance Survey grid references and/or Global Positioning coordinates. The record should be made publicly available by means to be decided by the authority.

5.17 The record should explain why the determination has been made, including:

(a) The risk summary required by section 3 of this Guidance, and where not already covered in the risk summary: (i) a relevant conceptual model comprising text, plans, cross sections, photographs and tables as necessary in the interests of making the description understandable to the layperson; and (ii) a summary of the relevant assessment of this evidence.

(b) A summary of why the local authority considers that the requirements of relevant sections of this Guidance have been satisfied.

5.18 The local authority should seek to ensure (as far as reasonable) that all aspects of the record of determination are understandable to non-specialists, including affected members of the public.

Reconsideration, revocation and variation of determinations

5.19 The local authority should reconsider any determination that land is radioactive contaminated land if it becomes aware of further information which it considers significantly alters the basis for its original decision. In such cases the authority should decide whether to retain, vary or revoke the determination having sought and taken into account the advice of the Environment Agency.

5.20 The local authority should reconsider any determination of radioactive contaminated land if remediation action has been taken which, in the view of

the authority, stops the land being radioactive contaminated land. In such cases the authority should issue a statement to this effect, having regard to paragraph 5.2 and 5.3 above.

5.21 If the local authority varies or revokes a determination, or issues a statement in accordance with paragraph 5.20, it should record its reasons for doing so alongside the initial record of determination in a way that ensures the changed status of the land is made clear. If the reconsideration results in relevant documentation, such as a revised determination notice or a statement in accordance with paragraph 5.20, copies of this documentation should also be recorded. The authority should ensure that interested parties are informed of the decisions and the reasons for it, including the owner of the land; any person who appears to the authority to be in occupation of the whole or any part of the land; any person who was previously identified by the authority to be an appropriate person; and the Environment Agency.

Section 6: Remediation of Radioactive Contaminated Land

6.1 Once land has been determined as radioactive contaminated land, the enforcing authority must consider how it should be remediated and, where appropriate, it must issue a remediation notice to require such remediation. As explained in paragraph 2.9 above, the enforcing authority for the purposes of remediation of radioactive contaminated land is the Environment Agency, which takes on responsibility once the land has been determined as a "special site". The rules on the issuing of remediation notices are set out in the Contaminated Land (England) Regulations 2006.

6.2 Relevant provisions of Part 2A include:

- Section 78A(7): Defines "remediation" as: "(a) the doing of anything for the purpose of assessing the condition of – (i) the contaminated land in question; or (ii) any land adjoining or adjacent to that land; (b) the doing of any works, the carrying out of any operations or the taking of any steps in relation to any such land for the purpose – (i) of preventing or minimising, or remedying or mitigating the effects of, any harm by reason of which the contaminated land is such land; or (ii) of restoring the land to its former state; or (c) the making of subsequent inspections from time to time for the purpose of keeping under review the condition of the land".

- Section 78A(7A): See section 6.7 below.

- Section 78E(1): "In any case where [the local authority has identified contaminated land]...the enforcing authority shall... serve on each person who is an appropriate person a..."remediation notice"...specifying what that person is to do by way of remediation and the periods within which he is required to do each of the things so specified."

- Section 78E(4): "Subject to subsection (4A), the only things by way of remediation which the enforcing authority may do, or require to be done, under or by virtue of this Part are things which it considers reasonable, having regard to – (a) the cost which is likely to be involved; and (b) the seriousness of the harm in question.

- Section 78E(4A): "Where remediation includes the implementation of a protective or remedial measure, that part of the remediation which consists of the implementation of any such measure may be considered reasonable only – (a) where the measure does more good than harm; and (b) where the form, scale and duration of the measure is optimised."

- Section 78E(4B): “For the purpose of subsection (4A), the form, scale and duration of a protective or remedial measure shall be taken to be optimised if the magnitude of individual doses, the likelihood of exposure and the number of individuals exposed are kept as low as reasonably achievable taking into account the current state of technical knowledge and economic and societal factors.”

- Section 78E(5): “In determining for any purpose of this Part – (a) what is to be done (whether by an appropriate person, the enforcing authority, or any other person) by way of remediation in any particular case, (b) the standard to which any land is to be remediated pursuant to [a remediation] notice, or (c) what is, or is not, to be regarded as reasonable for the purposes of subsection (4) above, the enforcing authority shall have regard to any guidance issued for the purpose by the Secretary of State.”

6.3 The Environment Agency as the enforcing authority should have regard to this Guidance when it is: (a) deciding what remediation action it should specify in a remediation notice as being required to be carried out; (b) satisfying itself that appropriate remediation is being, or will be, carried out without the service of a notice; or (c) deciding what remediation action it should carry out itself.

6.4 The guidance in this Section does not attempt to set out detailed technical procedures or working methods. In considering such matters, the Environment Agency may consult relevant technical documents (e.g. those produced by other professional and technical organisations). It may also act on the advice of a suitably qualified experienced practitioner.

Section 6(a): Remediation actions and objectives

6.5 The broad aim of remediation should be: (a) to remove identified significant contaminant linkages, or permanently to disrupt them to ensure they are no longer significant and that risks are reduced to below an unacceptable level; and/or (b) to take reasonable measures to remedy harm that has been caused by a significant contaminant linkage.

6.6 Remediation may involve a range of treatment, assessment and monitoring actions, sometimes with different remediation actions being used in combination or sequentially to secure the overall remediation of the land.

6.7 In the case of radioactive contaminated land, it is necessary to ensure compliance with Article 73.1 of the 2013 BSSD which is given effect by, in particular, section 78A(7A). Section 78A(7A) states that “the doing of any works, the carrying out of any operations or the taking of any steps in relation to any such land" shall include ensuring that (a) any such area is demarcated; (aa) affected members of the public are identified; (ab) assessment of the

means available to the individuals identified under subsection (aa) for controlling their own exposure is made; (b) arrangements for the monitoring of the harm are made; (d) access to or use of land or buildings situated in the demarcated area is regulated; and (e) any other appropriate protective or remedial measure is implemented."

6.8 In cases where the aim of remediation is to remove or permanently disrupt significant contaminant linkages, remediation treatment should involve demonstrable disruption or removal of the significant contaminant linkage(s) that led to land being determined as radioactive contaminated land, in order to reduce or remove unacceptable risks to receptors. This might involve one or more of the following:

(a) Reducing or treating the contaminant part of the linkage (e.g. by physically removing contaminants or contaminated soil, or by treating the soil to reduce levels of contaminants).

(b) Breaking, removing or disrupting the pathway parts of the linkage (e.g. a pathway could be disrupted by removing or reducing the chance that receptors might be exposed to contaminants, for example by sealing a site with a material such as clay or concrete).

(c) Protecting or removing the receptor. For example, by changing the land use or restricting access to a site it may be possible to reduce risks to below an unacceptable level. Restrictions on the land use may, if appropriate, include imposing restrictions on living conditions (e.g. domestic food production) in such sites.

6.9 Assessment, monitoring or demarcation actions may also be required as part of remediation. For example, assessment actions may be needed to characterise the nature of significant contaminant linkage(s) to help the Environment Agency decide what remediation should involve. Assessment may also be needed whilst other remediation actions are being carried out, or after other actions have been carried out (e.g. to assess the effectiveness of the other measures, or to inform the need for possible further remediation actions). Monitoring actions may be needed after remediation has taken place (e.g. to check whether remediation action has been successful, or whether there is a need for further assessment or action). Demarcation may be appropriate to limit access to a contaminated area.

6.10 Assessment and monitoring action should not be required for any purpose other than the remediation of the land in relation to the reason why it was determined as radioactive contaminated land.

Phased Remediation

6.11 Remediation may require a phased approach, with different remediation actions being carried out in sequence or in parallel.

6.12 In some cases, it may not be possible or reasonable for a single remediation notice to specify all the remediation actions which might eventually be needed. In such cases, the Environment Agency should specify in the notice the remediation action(s) which it considers to be appropriate at the time, and further remediation notices may need to be issued later regarding further phases of action.

6.13 If a phased approach is taken to remediation, before serving a further remediation notice, the Environment Agency should be satisfied that previous action has not already achieved the remediation of the land (i.e. to a standard to which remediation can reasonably be required, having regard to the advice below), and that further action is still necessary to achieve the remediation of the land in question.

Remediation of multiple significant pollutant linkages

6.14 Where more than one significant contaminant linkage has been identified on the land, the Environment Agency should consider whether reasonable actions for addressing each linkage individually would result in the optimum approach for achieving the overall remediation of the land. If a more integrated approach would be more practicable and more cost effective whilst still delivering the same (or a better) overall standard of remediation the Environment Agency should generally favour this approach. However, in cases where more than one party has been found responsible for linkages, the Environment Agency should not impose an approach which is more costly for any responsible party than addressing the linkages separately. Where protective or remedial measures are involved, the Environment Agency will need to ensure compliance with the principles of justification and optimisation (see paragraphs 6.38 - 6.44 below).

Section 6(b): Securing remediation without a remediation notice

6.15 Before serving a remediation notice, the Environment Agency should consider section 78H(5)(a-d) of Part 2A. The Agency should not serve a remediation notice if it is satisfied that appropriate measures are being taken by way of remediation without the serving of a remediation notice. The Agency should assume that appropriate measures are being taken if: (a) it is satisfied that steps are being taken that are likely to achieve a standard of remediation equal to, or better than, what the Agency would otherwise have specified in a remediation notice; and (b) the Agency is satisfied that the timescale in which remediation is planned to take place is appropriate.

6.16 The Environment Agency should actively consider the merits and likelihood of achieving remediation without recourse to a remediation notice before issuing a remediation notice.

Section 6(c): Standard of remediation

6.17 Part 2A states that the Environment Agency as the enforcing authority may only require (or undertake itself in cases where direct enforcing authority activity is deemed necessary) actions in a remediation notice which are reasonable with regard to the cost and the seriousness of the harm. This requirement is in addition to the broader responsibility on the Environment Agency, as a public regulator, to act in a reasonable manner.

6.18 In cases where the aim of remediation is to disrupt significant contaminant linkages, the Environment Agency should aim to ensure that remediation achieves a standard sufficient to ensure the land no longer poses sufficient risk to qualify as radioactive contaminated land (but note paragraph 6.20 below). In using powers under Part 2A, the Environment Agency should not require a higher standard of remediation unless, in the case of proposed protective or remedial measures, this is required by the principles of justification and optimisation (see paragraphs 6.38 – 6.44 below).

6.19 The appropriate person or some other person might choose to carry out remediation to a higher standard (e.g. to increase the value or utility of the land, or to prepare it for redevelopment) but it should not be required by the Agency.

6.20 Where the Environment Agency considers that it is not practicable or reasonable to remediate land to a degree where it stops being radioactive contaminated land, the authority should consider whether it would be reasonable to require remediation to a lesser standard. In such situations the standard selected should take account of the 2013 BSSD recommended range of 1-20 mSv per year and in particular any national reference level which will apply during the emergency and the transition from an emergency exposure to an existing exposure situation. It should be noted that, for emergencies affecting large areas, management of the response may need to deal simultaneously with different exposure situations (i.e. emergency and existing exposure situations) affecting different geographic areas, each with their own reference level. Where the land has been identified and designated as radioactive contaminated land, and this contamination has resulted from the after-effects of an emergency, the Secretary of State may decide to issue further Statutory Guidance on the standard of remediation which may include setting the appropriate reference level taking account of the 2013 BSSD recommended range. The additional principles described below (section 6(d)), including justification and optimisation, must also be taken into account.

6.21 In cases where the purpose of remediation is to remedy harm that has already been caused, the Environment Agency should decide what is a suitable standard of remediation having regard to the guidance on reasonableness (including the principles of justification and optimisation below). In some cases it may be reasonable to require land to be restored to its former state. In other cases it may not be practicable and/ or reasonable to do this. In such cases the Environment Agency should consider whether it would be reasonable to require remediation to a lesser standard.

Section 6(d): Reasonableness of remediation

6.22 The Environment Agency may only require remediation action in a remediation notice if it is satisfied that those actions are reasonable. In deciding what is reasonable, the Agency should consider various factors, having particular regard to: (a) the practicability, effectiveness and durability of remediation; (b) the health and environmental impacts of the chosen remedial options; (c) the financial cost which is likely to be involved; (d) the benefits of remediation with regard to the seriousness of the harm in question and (e) where remediation involves protective or remedial measures, whether those measures meet the principles of justification and optimisation.

6.23 The paragraphs below explain how the Environment Agency should consider these factors in reaching a judgement on what is reasonable. The Agency should regard a remediation action as being reasonable if it is satisfied that the benefits of remediation are likely to outweigh the costs of remediation. Where remediation of harm involves the implementation of a protective or remedial measure, the Agency is required to have regard to a broader set of potential adverse impacts under the principle of justification and to ensure the net benefit of the protective or remedial measure is maximised under the principle of optimisation (see paragraphs 6.38 – 6.44 below).

6.24 In some cases, it might be that there is more than one potential approach to remediation that would be reasonable. In such cases the Agency should choose what it considers to be the “best practicable technique” having regard to the factors above. Unless there are strong grounds to consider otherwise, the best practicable technique in such circumstances is likely to be the technique that achieves the required standard of remediation to the appropriate timescale, whilst imposing the least cost on the persons who will pay for the remediation. Where remediation of harm involves a protective or remedial measure, the Agency is required to choose the option that maximises the net benefit of the measure.

Practicability, effectiveness and durability of remediation

6.25 The Environment Agency should ensure that any requirement it makes in regard to remediation is practicable and effective – i.e. it should be possible, within reasonable limits, for the person to undertake the required actions, and

the actions should be effective in addressing the problem at hand. This applies both to the remediation scheme as a whole and the individual remediation actions of which it is comprised.

6.26 In assessing the practicability of any remediation, the Agency should consider, in particular: (i) technical constraints, such as whether the technical capacity and resources needed to undertake the work exist, and could reasonably be made available; (ii) site constraints, such as access to the relevant land, the presence of buildings or other structures in, on or under the land; (iii) time constraints, such as whether it would be possible to carry out the remediation within the required time period; and (iv) regulatory constraints, such as whether the remediation can be carried out within relevant statutory or similar controls, for example, the legal disposal of wastes arising.

6.27 The Environment Agency should consider the durability of remediation. In some cases it will be reasonable to require (or otherwise ensure) a permanent solution to the problem. In other cases this may not be possible or reasonable, in which case the authority should consider how to ensure a reasonable standard of durability. The aim should be to ensure (as far as practical and reasonable) that the scheme as a whole would continue to be effective during the time over which the significant contaminant linkage would continue to exist or recur.

6.28 In considering durability, the Environment Agency should consider whether it is likely that some other future action (such as redevelopment) will resolve or control the problem. If the Agency feels that such action is likely to occur within a reasonable timescale, the Agency may consider whether it would be appropriate to require remediation of limited durability, pending a more durable solution later.

6.29 Where a remediation scheme cannot reasonably and practicably continue to be effective during the whole of the expected duration of the problem, the Environment Agency should require the remediation to be effective for as long as can reasonably and practicably be achieved. In such circumstances, additional monitoring actions may be required.

6.30 Where a remediation method requires on-going management and maintenance in order to continue to be effective (for example, the maintenance of gas venting or alarm systems), these on-going requirements should be specified in any remediation notice (or similar remediation agreement if remediation is being taken forward without such a notice) as well as any monitoring actions necessary to keep the effectiveness of the remediation under review.

Financial cost of remediation

6.31 In considering the costs likely to be involved in carrying out any remediation action, the Environment Agency should take into account the direct financial costs likely to be caused by remediation. This would include:

(a) The cost of preparing for remediation to take place (e.g. feasibility studies, design of remediation actions, management costs, and the cost of relevant assessment actions).

(b) The cost of undertaking the remediation actions and making good afterwards, including any tax payable.

(c) The cost of managing the land after the main remediation action has taken place (e.g. on-going requirements to manage or maintain the remediation action, and the cost of any monitoring or assessment action).

(d) Relevant disruption costs (e.g. depreciation in the value of land or other interests, or other loss or damage, which is likely to result from the carrying out of the remediation action in question).

(e) The above costs relative to any estimated increase in the financial value and utility of the land as a result of remediation, and whether such increase in value and utility would accrue to the person(s) bearing the cost of remediation.

(In the case of a protective or remedial measure, other costs may need to be weighed in the balance - see paragraphs 6.38 – 6.44 below.)

6.32 The identity or financial standing of any person who may be required to pay for a remediation action are not relevant to the consideration of whether the costs of a remediation action are reasonable (although they may be relevant in deciding whether the cost of remediation can be imposed on such persons).

Benefits of remediation

6.33 In considering the benefits of remediation, the Environment Agency should consider: (a) the seriousness of any harm and the various factors that led the land to be determined (e.g. the scale of harm that might already be occurring; or the likelihood of potential future harm and the likely impact if it were to occur); (b) the context in which the effects are occurring or might occur; and (c) any estimated increase in the financial value and utility of the land as a result of remediation, and who would benefit from such an increase. In considering such benefits it is for the Agency to decide whether or not to describe such benefits (whether direct or indirect) in terms of monetary value or whether to make a qualitative consideration.

Health and environmental impacts of remediation

6.34 In considering the costs of remediation and the seriousness of harm, the Environment Agency should also consider other costs and impacts that may, directly or indirectly, result from remediation. This should include consideration of: (a) potential health impacts of remediation; and (b) environmental impacts of remediation. In considering such impacts it is for the Agency to decide whether or not to describe such costs in terms of monetary value or whether to make a qualitative consideration.

6.35 The Environment Agency's consideration of potential health impacts of remediation should include: (a) direct health effects (e.g. resulting from contaminants being mobilised during remediation, and worker safety); and (b) indirect health effects such as stress related effects that may be experienced by affected people, particularly local residents. In making this consideration the Agency should also be mindful of the health benefits of remediation and the potential health impacts of not remediating the land.

6.36 With regard to environmental impacts of remediation, the Environment Agency should consider whether remediation can be carried out without disproportionate damage to the environment, and in particular: (a) without unacceptable risk to water, air, soil and plants and animals; (b) without causing a nuisance through noise or odours; (c) without adversely affecting the countryside or places of special interest; and (d) without adversely affecting a building of special architectural or historic interest.

6.37 The Environment Agency should strive to minimise impacts of remediation on health and the environment (and comply with any relevant regimes that might require this, for example the planning and environmental permitting regimes). If the Agency considers that health or environmental impacts of a particular remediation approach are likely to outweigh the likely benefits of dealing with the risk posed by the contamination, it should consider whether an alternative approach to remediation is preferable, even if it may deliver a lower standard of remediation than other techniques.

Remediation of harm involving the implementation of a protective or remedial measure: applying the principles of justification and optimisation

6.38 Where the proposed remediation involves the implementation of a protective or remedial measure, the Environment Agency must apply the principles of justification and optimisation: it must ensure that any protective or remedial measure is both justified and optimised. These principles are laid down in Article 5 of the 2013 BSSD and given effect in Part 2A (in particular section 78E(4A) and (4B)). The terms "protective measure", "remedial measure", justification" and "optimisation", as well as "detriment", are defined as follows and also appear in the Glossary at the end of this Guidance:

Remedial measure: the removal of a radiation source or the reduction of its magnitude (in terms of activity or amount) or the interruption of exposure pathways or the reduction of their impact for the purposes of avoiding or reducing doses that might otherwise be received from contaminated land.

Protective measure: measures, other than remedial measures, for the purpose of avoiding or reducing doses that might otherwise be received from contaminated land.

Justification: decisions introducing or altering an exposure pathway shall be justified in the sense that they should do more good than harm.

Optimisation: radiation protection of individuals subject to public exposures must be optimised with the aim of keeping the magnitude of individual doses, the likelihood of exposure and the number of individuals exposed as low as reasonably achievable taking into account the current state of technical knowledge and economic and societal factors.

Detriment: principally means a health detriment, but may also include other detriments, for example, a detriment associated with blight.

6.39 The principle of justification recognises that a protective or remedial measure may bring about reduction in doses and other harmful impacts but may incur costs and other adverse effects. Costs are not restricted to financial costs, but also include costs to society. To ensure optimisation, the Environment Agency should choose the option that maximises the net benefit of the protective or remedial measure, from the measures that are justified.

6.40 For a protective or remedial measure to be optimised on land affected by both radioactive and non-radioactive significant contaminant linkages, the optimisation should also have regard to the effect of any remedial actions addressing the non-radioactive significant contaminant linkage(s).

6.41 The assessment of whether a potential protective or remedial measure is justified and optimised should include the preparation of: (a) an estimate of the financial costs of the remediation (taking into account the guidance in paragraphs 6.31 and 6.32); (b) a statement of the social costs and adverse effects (see paragraphs 6.43 and 6.44 below) associated with the remediation; and (c) a statement of the benefit (e.g. reduction in radiation exposure) likely to result from the remediation.

6.42 In making an assessment of whether the remediation is justified or optimised, the Environment Agency should: (a) consult publications of international bodies, including the International Atomic Energy Agency; (b) if appropriate, apply the approaches of multi-attribute analysis in assessing the balance between the various factors that need to be taken into consideration and the

weightings which may be appropriate to assign to the various attributes; or alternatively, some other recognised options assessment approach; (c) consult with relevant stakeholder groups to understand their perceptions of the relative importance of different attributes; and (d) consider quantitative and qualitative methods as a decision-aid in helping to reveal the key issues and assumptions and allowing an analysis of the sensitivity to various assumptions.

6.43 The type of social costs and adverse effects to be considered as arising from a remediation may, for example, include: (a) social disruption such as vacating property, or limiting its use, or restricting access to it; (b) heavy traffic from vehicles, associated with the remediation; (c) the health impacts of the remediation (discussed in paragraphs 6.34 – 6.37 above) including those arising from doses to remediation workers; (d) the environmental impacts of the remediation (also discussed in paragraphs 6.34 – 6.37 above) including risks: (i) to water, air, soil and plants and animals, (ii) of nuisance through noise or odours, (iii) to the countryside or places of special interest, and (iv) to a building of special architectural or historic interest or a site of archaeological interest; and (e) the generation of waste and, where relevant, the transport and disposal of such waste.

6.44 The Environment Agency should consider both the seriousness of impacts of any social costs and also the likely duration of any impact.

Section 6(e): Revision of remediation notices

6.45 The Environment Agency should consider revising a remediation notice if it considers it is reasonable to do so. In particular this would apply to cases where new information comes to light which calls into question the reasonableness of an existing remediation notice. For example, this might be the case where information that comes to light during remediation shows that some remediation actions are no longer necessary, or that additional or alternative actions are necessary.

6.46 If the Environment Agency has issued a remediation notice but the person concerned later proposes an alternative remediation scheme, the Agency should consider whether to amend or revoke the remediation notice. It is for the Agency to decide the degree of consideration it gives to such a proposal. If the Agency decides to do this, it should be satisfied that the standard of remediation and the timescale in which it would take place are in line with the guidance in this section.

Section 6(f): Verification

6.47 Any remedial treatment action should include appropriate verification measures. In arranging for such measures, the Environment Agency should

ensure that the person responsible for verification is a suitably qualified experienced practitioner.

Section 7: Liability

7.1 The main provisions for the establishment of liability are set out in Part 2A, and the Environment Agency (and anyone else interested in liability) should refer directly to Part 2A. This section (as with all of this Guidance) should be read in conjunction with the 1990 Act, as applied with modifications by the Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006.

7.2 The statutory guidance in this section relates in particular to circumstances where two or more persons are liable to bear the responsibility for any particular thing by way of remediation. It deals with the questions of who should be excluded from liability, and how the cost of each remediation action should be apportioned between those who remain liable after any such exclusion. It is issued under section 78F(6) and (7) of the 1990 Act, which provides that:

- Section 78F(6): “Where two or more persons would, apart from this subsection, be appropriate persons in relation to any particular thing which is to be done by way of remediation, the enforcing authority shall determine in accordance with guidance issued for the purpose by the Secretary of State whether any, and if so which, of them is to be treated as not being an appropriate person in relation to that thing.”

- Section 78F(7): “Where two or more persons are appropriate persons in relation to any particular thing which is to be done by way of remediation, they shall be liable to bear the cost of doing that thing in proportions determined by the enforcing authority in accordance with guidance issued for the purpose by the Secretary of State.”

7.3 In summary, this section sets out a process involving:

(a) **Initial identification of liable persons**: The Environment Agency makes an initial identification of persons who may be responsible for paying for remediation actions. In doing this, each significant contaminant linkage is treated separately (unless it is reasonable to treat more than one linkage together because the same parties are liable). The Agency first looks for persons who caused or knowingly permitted each linkage in terms of section 78F(2) of Part 2A (who this Guidance refers to as “Class A” persons). If no Class A persons can be found, the Agency usually seeks to identify the owners or occupiers of the land in terms of section 78F(4) of Part 2A (who this Guidance refers to as “Class B” persons). The persons responsible for each linkage make up a “liability group” for that linkage. Liability groups may consist of one or more persons, and this Guidance sometimes uses the terms “Class A liability group” or a “Class B liability

group" to reflect the nature of persons in the group. A special rule applies where the land is "land contaminated by a nuclear occurrence" as defined under Part 2A. In this case, the Secretary of State is deemed to be the liable person. Therefore, the Environment Agency will need to consider whether a contaminant linkage arose by reason of the land being "land contaminated by a nuclear occurrence"(see paragraph 7.6(e) below).

(b) **Orphan linkages**: If no Class A or Class B persons can be found liable for a linkage and the Secretary of State is not liable, that linkage becomes known as an "orphan linkage" for which there are separate procedures set out at the end of this Section.

(c) **Remediation actions**: The Environment Agency decides what remediation actions relate to which linkages. This Guidance uses the term "remediation action" to mean any individual thing which is being, or is to be, done by way of remediation. A "remediation package" is all the remediation actions which relate to a particular linkage. A "remediation scheme" is the complete set of remediation actions (relating to one or more linkages) to be carried out with respect to the relevant land or waters.

(d) **Attribution of liability to liability groups**: The Environment Agency attributes responsibility between liability groups. This Guidance uses the term "attribution" to mean the process of apportionment between liability groups.

(e) **Exclusions**: The Environment Agency considers (with regard to any liability group with two or more members) whether members of the group should be excluded, in accordance with the rules for exclusion set out in Section 7(c) with regard to Class A persons, and Section 7(e) with regard to Class B persons. This Guidance uses the term "exclusion" to mean any decision by the Environment Agency that a person is to be treated as not being an appropriate person in accordance with section 78F(6) of Part 2A.

(f) **Apportioning liability between members of liability groups**: The Environment Agency decides how to apportion liability between the members of each liability group who remain after any exclusions have been made. This Guidance uses the term "apportionment" to mean a decision by the Agency dividing the costs of carrying out any remediation action between two or more appropriate persons in accordance with section 78F(7) of Part 2A.

As this Guidance relates to radioactive contaminated land, the only contaminant linkages with which this section is concerned are those which involve contaminants that are substances containing radionuclides which have been processed as part of a past practice or past work activity or have resulted from the after-effects of an emergency (as explained in Section 3).

Section 7(a): Procedure for determining liabilities

7.4 For some land, the process of determining liabilities will consist simply of identifying either a single person (either an individual or a corporation such as a limited company) who has caused or knowingly permitted the presence of a single significant contaminant, or the owner of the land. The history of other land may be more complex. A succession of different occupiers or of different industries or a variety of substances may all have contributed to the problems which have made the land radioactive contaminated land. Numerous separate remediation actions may be required, which may not correlate neatly with those who are to bear responsibility for the costs. The degree of responsibility for the state of the land may vary widely. Determining liability for the costs of each remediation action can be correspondingly complex.

Step 1: Identifying potential appropriate persons and liability groups

7.5 As part of the process of determining that the land is radioactive contaminated land (see Sections 4 and 5), the local authority will have identified at least one significant contaminant linkage (contaminant, pathway and receptor), resulting from the presence of at least one significant contaminant.

7.6 Where there is a single significant contaminant linkage:

(a) The Environment Agency should identify all persons who would be appropriate persons to pay for any remediation action relevant to the contaminant which forms part of the significant contaminant linkage. These persons constitute the "liability group" for that significant contaminant linkage.

(b) To achieve this, the Environment Agency should make reasonable enquiries to find all those who have caused or knowingly permitted the contaminant in question to be in, on or under the land. Any such persons constitute a "Class A liability group" for the significant contaminant linkage.

(c) If no such Class A persons can be found for a significant contaminant, the Environment Agency should identify all of the current owners or occupiers of the radioactive contaminated land in question. These persons then constitute a "Class B liability group" for the significant contaminant linkage.

(d) If the Environment Agency cannot find any Class A persons or any Class B persons in respect of a significant contaminant linkage and paragraph (e) below does not apply, there will be no liability group for that linkage and it should be treated as an “orphan linkage” (see paragraphs 7.92 – 7.98 below).

(e) Section 78F(1A) provides that “in relation to any land contaminated by a nuclear occurrence[13], the Secretary of State is deemed to be the appropriate person”.

7.7 Where there are two or more significant contaminant linkages, the Environment Agency should consider each significant contaminant linkage in turn, carrying out the steps set out in paragraph 7.6 above, to identify the liability group (if one exists) for each of the linkages.

7.8 Having identified one or more liability groups, the Environment Agency should consider whether any of the members of those groups are exempted from liability under the provisions in Part 2A. This could apply where:

(a) A Class B person is exempted from liability arising from the escape of a contaminant from one piece of land to other land (see section 78K of Part 2A).

(b) A person is exempted from liability by virtue of his being a person "acting in a relevant capacity" (such as acting as an insolvency practitioner) as defined in section 78X(4) of Part 2A.

7.9 If all of the members of any liability group benefit from one or more of these exemptions, the Environment Agency should treat the significant contaminant linkage in question as an orphan linkage (see paragraphs 7.92 – 7.98 below).

7.10 Persons may be members of more than one liability group (e.g. if they caused or knowingly permitted the presence of more than one significant contaminant).

7.11 Where the membership of all of the liability groups is the same, there may be opportunities for the Environment Agency to abbreviate the remaining stages of this procedure. However, the tests for exclusion and apportionment may produce different results for different significant contaminant linkages, and so the Environment Agency should exercise caution before trying to simplify the procedure in any case.

Step 2: Characterising remediation actions

7.12 Each remediation action will be carried out to achieve a particular purpose with respect to one or more defined significant contaminant linkages. Where there is a single significant contaminant linkage on the land in question, all the remediation actions will be referable to that linkage, and there is no need to

[13] “Land contaminated by a nuclear occurrence” is defined under section 78A(2A) of Part 2A of the Environmental Protection Act 1990,as applied with modifications by the Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006.

consider how the different actions relate to different linkages. This step and Step 3 of the procedure therefore do not need to be carried out where there is only a single significant contaminant linkage. However, where there are two or more significant contaminant linkages on the land in question, the Environment Agency should establish whether each remediation action is: (a) referable solely to the significant contaminant in a single significant contaminant linkage (a "single-linkage action"); or (b) referable to the significant contaminant in more than one significant contaminant linkage (a "shared action").

7.13 Where a remediation action is a shared action, there are two possible relationships between it and the significant contaminant linkages to which it is referable. The Environment Agency should establish whether the shared action is:

(a) a "common action" – i.e. an action which addresses together all of the significant contaminant linkages to which it is referable, and which would have been part of the remediation package for each of those linkages if each of them had been addressed separately.

(b) a "collective action" – i.e. an action which addresses together all of the significant contaminant linkages to which it is referable, but which would not have been part of the remediation package for every one of those linkages if each of them had been addressed separately, because: (i) the action would not have been appropriate in that form for one or more of the linkages (since some different solution would have been more appropriate); (ii) the action would not have been needed to the same extent for one or more of the linkages (since a less far-reaching version of that type of action would have sufficed); or (iii) the action represents a more economic way of addressing the linkages together which would not be possible if they were addressed separately.

7.14 A collective action replaces actions that would have been appropriate for the individual significant contaminant linkages if they had been addressed separately, as it achieves the purposes which those other actions would have achieved.

Step 3: Attributing responsibility between liability groups

7.15 This stage of the procedure does not apply in simpler cases. Where there is only a single significant contaminant linkage, the liability group for that linkage bears the full cost of carrying out any remediation action. Where the linkage is an orphan linkage, the Environment Agency is required to exercise its power to carry out the remediation action itself, at its own cost (although it may obtain a contribution to its costs from the Secretary of State in certain circumstances). Where the linkage arises from a nuclear occurrence, the Agency is also required to carry out the remediation itself, but the Secretary of State (as the appropriate person) will bear the cost.

7.16 Similarly, for any single-linkage action, the liability group (i.e. the group that remains after the exclusions in paragraph 7.8 have been applied) for the significant contaminant linkage in question bears the full cost of carrying out that action.

7.17 However, the Environment Agency should apply the guidance in Section 7(g) below with respect to each shared action, in order to attribute to each of the different liability groups their share of responsibility for that action.

7.18 After the guidance in Section 7(g) has been applied to all shared actions, it may be the case that a Class B liability group which has been identified does not have to bear the costs for any remediation actions. Where this is the case, the Environment Agency does not need to apply any of the rest of the guidance in this Chapter to that liability group.

Step 4: Excluding members of a liability group

7.19 The Environment Agency should now consider, for each liability group which has two or more members, whether any of those members should be excluded from liability: (a) for each Class A liability group with two or more members, the Environment Agency should apply the guidance on exclusion in Section 7(c); and (b) for each Class B liability group with two or more members, the Environment Agency should apply the guidance on exclusion in Section 7(e).

Step 5: Apportioning liability between members of a liability group

7.20 The Environment Agency should now determine how any costs attributed to each liability group should be apportioned between the members of that group who remain after any exclusions have been made.

7.21 For any liability group (after the exclusions in paragraph 7.8 have been applied) which has only a single remaining member, that person bears all of the costs falling to that liability group (i.e. both the cost of any single-linkage action referable to the significant contaminant linkage in question; and the share of the cost of any shared action attributed to the group as a result of the attribution process set out in Section 7(g)).

7.22 For any liability group which has two or more remaining members, the Environment Agency should apply the relevant guidance on apportionment between those members. Each of the remaining members of the group will then bear the proportion determined under that guidance of the total costs falling to the group, that is both the cost of any single-linkage action referable to the significant contaminant linkage in question, and the share of the cost of any shared action attributed to the group as a result of the attribution process set out in Part 9. The relevant apportionment guidance is: (a) for any Class A liability group, the guidance set out in Section 7(d); and (b) for any Class B liability group, the guidance set out in Section 7(f).

Section 7(b): General considerations relating to exclusion, apportionment and attribution procedures

7.23 This sub-section sets out general guidance about the application of the exclusion, apportionment and attribution procedures set out in the rest of this section. It is issued under both section 78F(6) and section 78F(7).

7.24 The Environment Agency should ensure that any person who might benefit from an exclusion, apportionment or attribution is aware of the guidance in this section, so that they may make appropriate representations to the Agency.

7.25 The Environment Agency should apply the tests for exclusion (in Section 7(c) and (e)) with respect to the members of each liability group. If a person, who would otherwise be an appropriate person to bear responsibility for a particular remediation action, has been excluded from the liability groups for all of the significant contaminant linkages to which that action is referable, he should be treated as not being an appropriate person in relation to that remediation action.

Financial circumstances

7.26 The financial circumstances of those concerned should have no bearing on the application of the procedures for exclusion, apportionment and attribution in this section, except where the circumstances in paragraph 7.74 below apply (the financial circumstances of those concerned are taken into account in the separate consideration under section 78P(2) on hardship and cost recovery). In particular, it should be irrelevant in the context of decisions on exclusion and apportionment: (a) whether those concerned would benefit from any limitation on the recovery of costs under the provisions on hardship and cost recovery in section 78P(2); or (b) whether those concerned would benefit from any insurance or other means of transferring their responsibilities to another person.

Information and Decisions

7.27 The Environment Agency should make reasonable endeavours to consult those who may be affected by any exclusion, apportionment or attribution. In all cases, however, it should seek to obtain only such information as it is reasonable to seek, having regard to: (a) how the information might be obtained; (b) the cost of obtaining the information for all parties involved; and (c) the potential significance of the information for any decision.

7.28 The statutory guidance in this Section should be applied in the light of the circumstances as they appear to the Environment Agency on the basis of the evidence available to it at that time. Where the Environment Agency is

presented with conflicting evidence, it should make decisions with regard to the balance of probabilities. The Environment Agency should take into account the information that it has acquired in the light of the guidance in the previous paragraph, but the burden of providing the Agency with any further information needed to establish an exclusion or to influence an apportionment or attribution should rest on any person seeking such a benefit. The Environment Agency should consider any relevant information which has been provided by those potentially liable under these provisions. Where any such person provides such information, any other person who may be affected by an exclusion, apportionment or attribution based on that information should be given a reasonable opportunity to comment on that information before the determination is made.

Agreements on Liabilities

7.29 In any case where:

(a) two or more persons are appropriate persons and thus responsible for all or part of the costs of a remediation action;

(b) they agree, or have agreed, the basis on which they wish to divide that responsibility; and

(c) a copy of the agreement is provided to the Environment Agency and none of the parties to the agreement informs the Agency that it challenges the application of the agreement;

the Environment Agency should generally make such determinations on exclusion, apportionment and attribution as are needed to give effect to this agreement, and should not apply the remainder of this guidance for exclusion, apportionment or attribution between the parties to the agreement. However, the Environment Agency should apply the guidance to determine any exclusions, apportionments or attributions between any or all of those parties and any other appropriate persons who are not parties to the agreement.

7.30 However, where giving effect to such an agreement would increase the share of the costs theoretically to be borne by a person who would benefit from a limitation on recovery of remediation costs under the provision on hardship in section 78P(2)(a) or under the guidance on cost recovery issued under section 78P(2)(b), the Environment Agency should disregard the agreement.

Section 7(c): Exclusion of Members of a Class A Liability Group

7.31 This sub-section of the Guidance sets out the tests for determining whether to exclude from liability a person who would otherwise be a Class A person. The tests are intended to establish whether, in relation to other members of the liability group, it is fair that relevant persons should bear any part of that responsibility.

7.32 The exclusion tests below are subject to the following overriding guidance:

(a) the exclusions that the Environment Agency should make are solely in respect of the significant contaminant linkage giving rise to the liability of the liability group in question; an exclusion in respect of one significant contaminant linkage has no necessary implication in respect to any other such linkage, and a person who has been excluded with respect to one linkage may still be liable to meet all or part of the cost of carrying out a remediation action by reason of his membership of another liability group;

(b) the tests should be applied in the sequence in which they are set out; and

(c) if the result of applying a test would be to exclude all of the members of the liability group who remain after any exclusions resulting from previous tests, that further test should not be applied, and consequently the related exclusions should not be made.

7.33 The effect of any exclusion made under Test 1, or Tests 4 to 6 below should be to remove completely any liability that would otherwise have fallen on the person benefiting from the exclusion. Where the Environment Agency makes any exclusion under one of these tests, it should therefore apply any subsequent exclusion tests, and make any apportionment within the liability group, in the same way as it would have done if the excluded person had never been a member of the liability group.

7.34 The effect of any exclusion made under Test 2 (Payments made for remediation) or Test 3 (Sold with information), on the other hand, is intended to be that the person who received the payment or bought the land, as the case may be, (the "payee or buyer") should bear the liability of the person excluded (the "payer or seller") in addition to any liability which the person is to bear in respect of their own actions or omissions. To achieve this, the Environment Agency should:

(a) complete the application of the other exclusion tests and then apportion liability between the members of the liability group, as if the payer or seller were not excluded as a result of Test 2 or Test 3; and

(b) then apportion any liability of the payer or seller, calculated on this hypothetical basis, to the payee or buyer, in addition to the liability (if any) that the payee or buyer has in respect of his own actions or omissions; this should be done even if the payee or buyer would otherwise have been excluded from the liability group by one of the other exclusion tests.

Related Companies

7.35 Before applying any of the exclusion tests, the Environment Agency should establish whether two or more of the members of the liability group are "related companies".

7.36 Where the question to be considered in any exclusion test concerns the relationship between, or the relative positions of, two or more related companies, the Environment Agency should not apply the test so as to exclude any of the related companies. For example, in Test 3 (Sold with information), if the "seller" and the "buyer" are related companies, the "seller" would not be excluded by virtue of that Test.

7.37 For these purposes, "related companies" are those which are, or were at the "relevant date", members of a group of companies consisting of a "holding company" and its "subsidiaries". The "relevant date" is that on which the enforcing Environment Agency first served on anyone a notice under section 78B(3) identifying the land as radioactive contaminated land, and the terms "holding company" and "subsidiaries" have the same meaning as in Section 1159 of the Companies Act 2006.

Exclusion tests for Class A persons

Test 1: Excluded activities

7.38 The purpose of Test 1 is to exclude persons who have been identified as members of a Class A liability group solely on grounds of having carried out certain activities. The activities are ones which, in the Government's view, carry such limited responsibility (if any) that exclusion would be justified even where the activity is held to amount to "causing or knowingly permitting" under Part 2A. This is not intended to imply that the carrying out of such activities necessarily amounts to "causing or knowingly permitting".

7.39 In applying Test 1, the Environment Agency should exclude any appropriate person who is a member of a liability group solely by reason of one or more of the activities listed in (a) to (k) below.

(a) Providing (or withholding) financial assistance to another person (whether or not that other person is a member of the liability group), in the form of any one or more of the following: (i) making a grant; (ii) making a loan or providing any other form of credit, including instalment credit, leasing arrangements and mortgages; (iii) guaranteeing the performance of a

person's obligations; (iv) indemnifying a person in respect of any loss, liability or damage; (v) investing in the undertaking of a body corporate by acquiring share capital or loan capital of that body without thereby acquiring such control as a "holding company" has over a "subsidiary" as defined in section 736 of the Companies Act 1985; or (iv) providing a person with any other financial benefit (including the remission in whole or in part of any financial liability or obligation).

(b) Underwriting an insurance policy under which another person was insured in respect of any occurrence, condition or omission by reason of which that other person has been held to have caused or knowingly permitted the significant contaminant to be in, on or under the land in question. For the purposes of this sub-paragraph: (i) underwriting an insurance policy is to be taken to include imposing any conditions on the person insured, for example relating to the manner in which he carries out the insured activity; and (ii) it is irrelevant whether or not the insured person can now be found.

(c) As a provider of financial assistance or as an underwriter, carrying out any action for the purpose of deciding whether or not to provide such financial assistance or underwrite such an insurance policy as is mentioned above. This sub-paragraph does not apply to the carrying out of any intrusive investigation in respect of the land in question for the purpose of making that decision where: (i) the carrying out of that investigation is itself a cause of the existence, nature or continuance of the significant contaminant linkage in question; and (ii) the person who applied for the financial assistance or insurance is not a member of the liability group.

(d) Consigning, as waste, to another person the substance which is now a significant contaminant, under a contract under which that other person knowingly took over responsibility for its proper disposal or other management on a site not under the control of the person seeking to be excluded from liability. For the purpose of this sub-paragraph, it is irrelevant whether or not the person to whom the waste was consigned can now be found.

(e) Creating at any time a tenancy over the land in question in favour of another person who has subsequently caused or knowingly permitted the presence of the significant contaminant linkage in question (whether or not the tenant can now be found).

(f) As owner of the land in question, licensing at any time its occupation by another person who has subsequently caused or knowingly permitted the presence of the significant contaminant in question (whether or not the licensee can now be found). This test does not apply in a case where the person granting the licence operated the land as a site for the disposal or storage of waste at the time of the grant of the licence.

(g) Issuing any statutory permission, licence or consent required for any action or omission by reason of which some other person appears to the Environment Agency to have caused or knowingly permitted the presence of the significant contaminant in question (whether or not that other person can now be found). This test does not apply in the case of statutory undertakers granting permission for their contractors to carry out works.

(h) Taking, or not taking, any statutory enforcement action: (i) with respect to the land, or (ii) against some other person who appears to the Environment Agency to have caused or knowingly permitted the presence of the significant contaminant in question, whether or not that other person can now be found.

(i) Providing legal, financial, engineering, scientific or technical advice to (or design, contract management or works management services for) another person (the "client"), whether or not that other person can now be found: (i) in relation to an action or omission (or a series of actions and/or omissions) by reason of which the client has been held to have caused or knowingly permitted the presence of the significant contaminant; (ii) for the purpose of assessing the condition of the land, for example whether it might be contaminated; or (iii) for the purpose of establishing what might be done to the land by way of remediation.

(j) As a person providing advice or services as described in sub-paragraph (i) above carrying out any intrusive investigation in respect of the land in question, except where: (i) the investigation is itself a cause of the existence, nature or continuance of the significant contaminant linkage in question; and (ii) the client is not a member of the liability group.

(k) Performing any contract by providing a service (whether the contract is a contract of service (employment), or a contract for services) or by supplying goods, where the contract is made with another person who is also a member of the liability group in question. For the purposes of this sub-paragraph the person providing the service or supplying the goods is referred to as the "contractor" and the other party as the "employer". This sub-paragraph applies to subcontracts where either the ultimate employer or an intermediate contractor is a member of the liability group. This sub-paragraph does not apply where: (i) the activity under the contract is of a kind referred to in a previous sub-paragraph of this paragraph; (ii) the action or omission by the contractor by virtue of which he has been identified as an appropriate person was not in accordance with the terms of the contract; or (iii) where:

- the employer is a body corporate;

- the contractor was a director, manager, secretary or other similar officer of the body corporate, or a person purporting to act in any such capacity, at the time when the contract was performed; and

- the action or omissions by virtue of which the employer has been identified as an appropriate person were carried out or made with the consent or connivance of the contractor, or were attributable to any neglect on his part.

Test 2: Payments for remediation

7.40 The purpose of this test is to exclude from liability those who have already, in effect, met their responsibilities by making certain kinds of payment to some other member of the liability group, which would have been sufficient to pay for adequate remediation.

7.41 In applying this test, the Environment Agency should consider whether all the following circumstances exist: (a) one of the members of the liability group has made a payment to another member of that liability group for the purpose of carrying out particular remediation on the land in question; only payments of the kinds set out in paragraph 7.42 immediately below are to be taken into account; (b) that payment would have been sufficient at the date when it was made to pay for the remediation in question; (c) if the remediation for which the payment was intended had been carried out effectively, the land in question would not now be in such a condition that it has been identified as radioactive contaminated land by reason of the significant contaminant linkage in question; and (d) the remediation in question was not carried out or was not carried out effectively.

7.42 Payments of the following kinds alone should be taken into account: (a) a payment made voluntarily, or to meet a contractual obligation, in response to a claim for the cost of the particular remediation; (b) a payment made in the course of a civil legal action, or arbitration, mediation or dispute resolution procedure, covering the cost of the particular remediation, whether paid as part of an out-of-court settlement, or paid under the terms of a court order; or (c) a payment as part of a contract (including a group of interlinked contracts) for the transfer of ownership of the land in question which is either specifically provided for in the contract to meet the cost of carrying out the particular remediation or which consists of a reduction in the contract price explicitly stated in the contract to be for that purpose.

7.43 For the purposes of this test, payments include consideration of any form.

7.44 However, no payment should be taken into account where the person making the payment retained any control after the date of the payment over the condition of the land in question (that is, over whether or not the substances by reason of which the land is regarded as radioactive contaminated land were

permitted to be in, on or under the land). For this purpose, neither of the following should be regarded as retaining control over the condition of the land: (a) holding contractual rights to ensure the proper carrying out of the remediation for which the payment was made; nor (b) holding an interest or right of any of the following kinds: (i) easements for the benefit of other land, where the radioactive contaminated land in question is the servient tenement, and statutory rights of an equivalent nature; (ii) rights of statutory undertakers to carry out works or install equipment; (iii) reversions upon expiry or termination of a long lease; or (iv) the benefit of restrictive covenants or equivalent statutory agreements.

7.45 If all of the circumstances set out in paragraph 7.41 above apply, the Environment Agency should exclude the person who made the payment in respect of the remediation action in question. (See paragraph 7.34 above for guidance on how this exclusion should be made.)

Test 3: Sold with information

7.46 The purpose of this test is to exclude from liability those who, although they have caused or knowingly permitted the presence of a significant contaminant in, on or under some land, have disposed of that land in circumstances where it is reasonable that another member of the liability group, who has acquired the land from them, should bear the liability for remediation of the land.

7.47 In applying this test, the Environment Agency should consider whether all the following circumstances exist:

(a) one of the members of the liability group (the "seller") has sold the land in question to a person who is also a member of the liability group (the "buyer");

(b) the sale took place at arms' length (that is, on terms which could be expected in a sale on the open market between a willing seller and a willing buyer);

(c) before the sale became binding, the buyer had information that would reasonably allow that particular person to be aware of the presence on the land of the contaminant identified in the significant contaminant linkage in question, and the broad measure of that presence; and the seller did nothing material to misrepresent the implications of that presence; and

(d) after the date of the sale, the seller did not retain any interest in the land in question or any rights to occupy or use that land.

7.48 In determining whether these circumstances exist:

(a) a sale of land should be regarded as being either the transfer of the freehold or the grant or assignment of a long lease; for this purpose, a "long lease" means a lease (or sub-lease) granted for a period of more than 21 years under which the lessee satisfies the definition of "owner" set out in section 78A(9);

(b) the question of whether persons are members of a liability group should be decided on the circumstances as they exist at the time of the determination (and not as they might have been at the time of the sale of the land);

(c) where there is a group of transactions or a wider agreement (such as the sale of a company or business) including a sale of land, that sale of land should be taken to have been at arms' length where the person seeking to be excluded can show that the net effect of the group of transactions or the agreement as a whole was a sale at arms' length;

(d) in transactions since the beginning of 1990 where the buyer is a large commercial organisation or public body, permission from the seller for the buyer to carry out his own investigations of the condition of the land should normally be taken as sufficient indication that the buyer had the information referred to in paragraph 7.47(c) above; and

(e) for the purposes of paragraph 7.47(d) above, the following rights should be disregarded in deciding whether the seller has retained an interest in the radioactive contaminated land in question or rights to occupy or use it: (i) easements for the benefit of other land, where the radioactive contaminated land in question is the servient tenement, and statutory rights of an equivalent nature, (ii) rights of statutory undertakers to carry out works or install equipment, (iii) reversions upon expiry or termination of a long lease, and (iv) the benefit of restrictive covenants or equivalent statutory agreements.

7.49 If all of the circumstances in paragraph 7.47 above apply, the Environment Agency should exclude the seller. (See paragraph 7.34 above for guidance on how this exclusion should be made.)

7.50 This test does not imply that the receipt by the buyer of the information referred to in paragraph 7.47(c) above necessarily means that the buyer has "caused or knowingly permitted" the presence of the significant contaminant in, on or under the land.

Test 4: Changes to substances

7.51 The purpose of this test is to exclude from liability those who are members of a liability group solely because they caused or knowingly permitted the presence in, on or under the land of a substance which has only led to the creation of a

significant contaminant linkage because of its interaction with another substance which was later introduced to the land by another person.

7.52 In applying this test, the Environment Agency should consider whether all the following circumstances exist:

(a) The substance forming part of the significant contaminant linkage in question is present, or has become a significant contaminant, only as the result of radioactive decay (the "intervening change") involving: (i) both a substance (the "earlier substance") which would not have formed part of the significant contaminant linkage if the intervening change had not occurred; and (ii) one or more other substances (the "later substances").

(b) The intervening change would not have occurred in the absence of the later substances;

(c) A person (the "first person") is a member of the liability group because he/she caused or knowingly permitted the presence in, on or under the land of the earlier substance, but he/she did not cause or knowingly permit the presence of any of the later substances.

(d) One or more other persons are members of the liability group because they caused or knowingly permitted the later substances to be in, on or under the land.

(e) Before the date when the later substances started to be introduced in, on or under the land, the first person: (i) could not reasonably have foreseen that the later substances would be introduced onto the land; (ii) could not reasonably have foreseen that, if they were, the intervening change would be likely to happen; or (iii) took what, at that date, were reasonable precautions to prevent the introduction of the later substances or the occurrence of the intervening change, even though those precautions have, in the event, proved to be inadequate.

(f) After that date, the first person did not: (i) cause or knowingly permit any more of the earlier substance to be in, on or under the land in question; (ii) do anything which has contributed to the conditions that brought about the intervening change; or (iii) fail to do something which he could reasonably have been expected to do to prevent the intervening change happening.

7.53 If all of the circumstances in paragraph 7.52 above apply, the Environment Agency should exclude the first person (or persons, if more than one member of the liability group meets this description).

Test 5: Escaped substances

7.54 The purpose of this test is to exclude from liability those who would otherwise be liable for the remediation of radioactive contaminated land which has become contaminated as a result of the escape of substances from other land, where it can be shown that another member of the liability group was actually responsible for that escape.

7.55 In applying this test, the Environment Agency should consider whether all the following circumstances exist:

(a) a significant contaminant is present in, on or under the radioactive contaminated land in question wholly or partly as a result of its escape from other land;

(b) a member of the liability group for the significant contaminant linkage of which that contaminant forms part: (i) caused or knowingly permitted the contaminant to be present in, on or under that other land (that is, the person is a member of that liability group by reason of section 78K(1)), and (ii) is a member of that liability group solely for that reason; and

(c) one or more other members of that liability group caused or knowingly permitted the significant contaminant to escape from that other land and its escape would not have happened but for their actions or omissions.

7.56 If all of the circumstances in paragraph 7.55 above apply, the Environment Agency should exclude any person meeting the description in paragraph 7.55(b) above.

Test 6: Introduction of pathways or receptors

7.57 The purpose of this test is to exclude from liability those who would otherwise be liable solely because of the subsequent introduction by others of the relevant pathways or receptors (as defined in Section 3) in the significant contaminant linkage.

7.58 In applying this test, the Environment Agency should consider whether all the following circumstances exist:

(a) One or more members of the liability group have carried out a relevant action, and/or made a relevant omission ("the later actions"), either: (i) as part of the series of actions and/or omissions which amount to their having caused or knowingly permitted the presence of the contaminant in a significant contaminant linkage; or (ii) in addition to that series of actions and/or omissions.

(b) The effect of the later actions has been to introduce the pathway or the receptor which form part of the significant contaminant linkage in question.

(c) If those later actions had not been carried out or made, the significant contaminant linkage would either not have existed, or would not have been a significant contaminant linkage, because of the absence of a pathway or of a receptor.

(d) A person is a member of the liability group in question solely by reason of having carried out other actions or making other omissions ("the earlier actions") which were completed before any of the later actions were carried out or made.

7.59 For the purpose of this test:

(a) A "relevant action" means: (i) the carrying out at any time of building, engineering, mining or other operations in, on, over or under the land in question; and/or (ii) the making of any material change in the use of the land in question for which a specific application for planning permission was required to be made (as opposed to permission being granted, or deemed to be granted, by general legislation or by virtue of a development order, the adoption of a simplified planning zone or the designation of an enterprise zone) at the time when the change in use was made.

(b) A "relevant omission" means: (i) in the course of a relevant action, failing to take a step which would have ensured that a significant contaminant linkage was not brought into existence as a result of that action, and/or (ii) unreasonably failing to maintain or operate a system installed for the purpose of reducing or managing the risk associated with the presence on the land in question of the significant contaminant in the significant contaminant linkage in question.

7.60 This test applies only with respect to developments on, or changes in the use of, the radioactive contaminated land itself. It does not apply where the relevant acts or omissions take place on other land, even if they have the effect of introducing pathways or receptors.

7.61 If all of the circumstances in paragraph 7.58 above apply, the Environment Agency should exclude any person meeting the description at paragraph 7.58(d) above.

Section 7(d): Apportionment between members of a single Class A liability group

7.62 The statutory guidance in this sub-section is issued under section 78F(7) and sets out the principles on which liability should be apportioned within each Class A liability group as it stands after any members have been excluded from liability with respect to the relevant significant contaminant linkage as a result of the application of the exclusion tests in Section 7(c).

7.63 The history and circumstances of different areas of radioactive contaminated land, and the nature of the responsibility of each of the members of any Class A liability group for a significant contaminant linkage, are likely to vary greatly. It is therefore not possible to prescribe detailed rules for the apportionment of liability between those members which would be fair and appropriate in all cases.

General Principles

7.64 In apportioning costs between the members of a Class A liability group who remain after any exclusions have been made, the Environment Agency should follow the general principle that liability should be apportioned to reflect the relative responsibility of each of those members for creating or continuing the risk now being caused by the significant contaminant linkage in question. In applying this principle, the Environment Agency should follow, where appropriate, the specific approaches set out in paragraphs 7.66-7.75 below.

7.65 If appropriate information is not available to enable the Environment Agency to make such an assessment of relative responsibility (and, following the guidance at paragraph 7.27 above, such information cannot reasonably be obtained) the Agency should apportion liability in equal shares among the remaining members of the liability group for any significant contaminant linkage, subject to the specific guidance in paragraph 7.74 below.

Specific Approaches

Partial applicability of an exclusion test

7.66 If, for any member of the liability group, the circumstances set out in any of the exclusion tests in Section 7(c) above apply to some extent, but not sufficiently to mean that the an exclusion should be made, the Environment Agency should assess that person's degree of responsibility as being reduced to the extent which is appropriate in the light of all the circumstances and the purpose of the test in question. For example, in considering Test 2, a payment may have been made which was sufficient to pay for only half of the necessary remediation at that time – the Agency could therefore reduce the payer's responsibility by half.

Entry of a substance vs. its continued presence

7.67 In assessing the relative responsibility of a person who has caused or knowingly permitted the entry of a significant contaminant into, onto or under land (the "first person") and another person who has knowingly permitted the continued presence of that same contaminant in, on or under that land (the "second person"), the Environment Agency should consider the extent to which the second person had the means and a reasonable opportunity to deal with the presence of the contaminant in question or to reduce the seriousness of the implications of that presence. The Agency should then assess the relative responsibilities on the following basis: (a) if the second person had the necessary means and opportunity, they should bear the same responsibility as the first person; (b) if the second person did not have the means and opportunity, their responsibility relative to that of the first person should be substantially reduced; and (c) if the second person had some, but insufficient, means or opportunity, their responsibility relative to that of the first person should be reduced to an appropriate extent.

Persons who have caused or knowingly permitted the entry of a significant contaminant

7.68 Where the Environment Agency is determining the relative responsibilities of members of the liability group who have caused or knowingly permitted the entry of the significant contaminant into, onto or under the land, it should follow the approach set out in paragraphs 7.69 to 7.72 below.

7.69 If the nature of the remediation action points clearly to different members of the liability group being responsible for particular circumstances at which the action is aimed, the Environment Agency should apportion responsibility in accordance with that indication. In particular, where different persons were in control of different areas of the land in question, and there is no interrelationship between those areas, the Environment Agency should regard the persons in control of the different areas as being separately responsible for the events which make necessary the remediation actions or parts of actions referable to those areas of land.

7.70 If the circumstances in paragraph 7.69 above do not apply, but the quantity of the significant contaminant present is a major influence on the cost of remediation, the Environment Agency should regard the relative amounts of that contaminant which are referable to the different persons as an appropriate basis for apportioning responsibility.

7.71 If it is deciding the relative quantities of contaminant which are referable to different persons, the Environment Agency should consider first whether there is direct evidence of the relative quantities referable to each person. If there is such evidence, it should be used. In the absence of direct evidence, the Environment Agency should see whether an appropriate surrogate measure is available. Such surrogate measures can include: (a) the relative periods during

which the different persons carried out broadly equivalent operations on the land; (b) the relative scale of such operations carried out on the land by the different persons (a measure of such scale may be the quantities of a product that were produced); (c) the relative areas of land on which different persons carried out their operations; and (d) combinations of the foregoing measures.

7.72 In cases where the circumstances in neither paragraph 7.69 nor 7.70 above apply, the Environment Agency should consider the nature of the activities carried out by the appropriate persons concerned from which the significant contaminant arose. Where these activities were broadly equivalent, the Environment Agency should apportion responsibility in proportion to the periods of time over which the different persons were in control of those activities. It would be appropriate to adjust this apportionment to reflect circumstances where the persons concerned carried out activities which were not broadly equivalent, for example where they were on a different scale.

Persons who have knowingly permitted the continued presence of a contaminant

7.73 Where the Environment Agency is determining the relative responsibilities of members of the liability group who have knowingly permitted the continued presence, over a period of time, of a significant contaminant in, on or under land, it should apportion that responsibility in proportion to: (a) the length of time during which each person controlled the land; (b) the area of land which each person controlled; (c) the extent to which each person had the means and a reasonable opportunity to deal with the presence of the contaminant in question or to reduce the seriousness of the implications of that presence; or (d) a combination of the foregoing factors.

Companies and officers

7.74 If, following the application of the exclusion tests (and in particular the specific guidance at paragraph 7.39(k)(iii)) both a company and one or more of its relevant officers remain as members of the liability group, the Environment Agency should apportion liability on the following bases:

(a) the Environment Agency should treat the company and its relevant officers as a single unit for the purposes of: (i) applying the general principle in paragraph 7.64 above (i.e. it should consider the responsibilities of the company and its relevant officers as a whole, in comparison with the responsibilities of other members of the liability group), and (ii) making any apportionment required by paragraph 7.65 above; and

(b) having determined the share of liability falling to the company and its relevant officers together, the Environment Agency should apportion responsibility between the company and its relevant officers on a basis which takes into account the degree of personal responsibility of those

officers, and the relative levels of resources which may be available to them and to the company to meet the liability.

7.75 For the purposes of paragraph 7.74 immediately above, the "relevant officers" of a company are any director, manager, secretary or other similar officer of the company, or any other person purporting to act in any such capacity.

Section 7(e): Exclusion of members of a Class B liability group

7.76 The guidance in this sub-section is issued under section 78F(6) and sets out the test which should be applied in determining whether to exclude from liability a person who would otherwise be a Class B person (that is, a person liable to meet remediation costs solely by reason of ownership or occupation of the land in question). The purpose of the test is to exclude from liability those who do not have an interest in the capital value of the land in question.

7.77 The test applies where two or more persons have been identified as Class B persons for a significant contaminant linkage.

7.78 In such circumstances, the Environment Agency should exclude any Class B person who either:

(a) occupies the land under a licence, or other agreement, of a kind which has no marketable value or which he is not legally able to assign or transfer to another person (for these purposes the actual marketable value, or the fact that a particular licence or agreement may not actually attract a buyer in the market, are irrelevant); or

(b) is liable to pay a rent which is equivalent to the rack rent for such of the land in question as he occupies and holds no beneficial interest in that land other than any tenancy to which such rent relates; where the rent is subject to periodic review, the rent should be considered to be equivalent to the rack rent if, at the latest review, it was set at the full market rent at that date.

7.79 However, the test should not be applied, and consequently no exclusion should be made, if it would result in the exclusion of all of the members of the liability group.

Section 7(f): Apportionment Between the Members of a Single Class B Liability Group

7.80 The statutory guidance in this sub-section is issued under section 78F(7) and sets out the principles on which liability should be apportioned within each Class B liability group as it stands after any members have been excluded from liability with respect to the relevant significant contaminant linkage as a result of the application of the exclusion test in Section 7(e) above.

7.81 Where the whole or part of a remediation action for which a Class B liability group is responsible clearly relates to a particular area within the land to which the significant contaminant linkage as a whole relates, liability for the whole, or the relevant part, of that action should be apportioned among those members of the liability group who own or occupy that particular area of land.

7.82 Where those circumstances do not apply, the Environment Agency should apportion liability for the remediation actions necessary for the significant contaminant linkage in question amongst all of the members of the liability group.

7.83 Where the Environment Agency is apportioning liability amongst some or all of the members of a Class B liability group, it should do so in proportion to the capital values of the interests in the land in question, which include those of any buildings or structures on the land:

(a) where different members of the liability group own or occupy different areas of land, each such member should bear responsibility in the proportion that the capital value of their area of land bears to the aggregate of the capital values of all the areas of land; and

(b) where different members of the liability group have an interest in the same area of land, each such member should bear responsibility in the proportion which the capital value of their interest bears to the aggregate of the capital values of all those interests; and

(c) where both the ownership or occupation of different areas of land and the holding of different interests come into the question, the overall liability should first be apportioned between the different areas of land and then between the interests within each of those areas of land, in each case in accordance with the last two sub-paragraphs.

7.84 The capital value used for these purposes should be that estimated by the Environment Agency, on the basis of the available information, disregarding the existence of any contamination. The value should be estimated in relation to the date immediately before the Environment Agency first served a notice under section 78B(3) in relation to that land. Where the land in question is

reasonably uniform in nature and amenity and is divided among a number of owner-occupiers, it can be an acceptable approximation of this basis of apportionment to make the apportionment on the basis of the area occupied by each.

7.85 Where part of the land in question is land for which no owner or occupier can be found, the Environment Agency should deduct the share of costs attributable to that land on the basis of the respective capital values of that land and the other land in question before making a determination of liability.

7.86 If appropriate information is not available to enable the Environment Agency to make an assessment of relative capital values (and, following the guidance at paragraph 7.27 above, such information cannot reasonably be obtained), the Environment Agency should apportion liability in equal shares among all the members of the liability group.

Section 7(g): Attribution of responsibility between liability groups

7.87 The statutory guidance in this sub-section is issued under section 78F(7) and applies where one remediation action is referable to two or more significant contaminant linkages (i.e. it is a "shared action"). This can occur either where both linkages require the same action (that is, it is a "common action") or where a particular action is part of the best combined remediation scheme for two or more linkages (that is, it is a "collective action"). This sub-section provides statutory guidance on the attribution of responsibility for the costs of any shared action between the liability groups for the linkages to which it is referable.

Attributing Responsibility for the Cost of Shared Actions between Liability Groups

7.88 The Environment Agency should attribute responsibility for the costs of any common action among the liability groups for the significant contaminant linkages to which it is referable on the following basis:

(a) If there is a single Class A liability group, then the full cost of carrying out the common action should be attributed to that group, and no cost should be attributed to any Class B liability group).

(b) If there are two or more Class A liability groups, then an equal share of the cost of carrying out the common action should be attributed to each of those groups, and no cost should be attributed to any Class B liability group).

(c) If there is no Class A liability group and there are two or more Class B liability groups, then the Environment Agency should treat those liability groups as if they formed a single liability group, attributing the cost of carrying out the common action to that combined group, and applying the guidance on exclusion and apportionment set out in sub-sections 7(e) and 7(f) above as between all of the members of that combined group.

7.89 The Environment Agency should attribute responsibility for the cost of any collective action among the liability groups for the significant contaminant linkages to which it is referable on the same basis as for the costs of a common action, except that where the costs fall to be divided among several Class A liability groups, instead of being divided equally, they should be attributed on the following basis:

(a) Having estimated the costs of the collective action, the Environment Agency should also estimate the hypothetical cost for each of the liability groups of carrying out the actions which are subsumed by the collective action and which would be necessary if the significant contaminant linkage for which that liability group is responsible were to be addressed separately; these estimates are the "hypothetical estimates" of each of the liability groups.

(b) The Environment Agency should then attribute responsibility for the cost of the collective action between the liability groups in the proportions which the hypothetical estimates of each liability group bear to the aggregate of the hypothetical estimates of all the groups.

Confirming the attribution of responsibility

7.90 If any appropriate person demonstrates, before the service of a remediation notice, to the satisfaction of the Environment Agency that the result of an attribution made on the basis set out in paragraphs 7.88 and 7.89 above would have the effect of the liability group of which they are a member having to bear a liability which is so disproportionate (taking into account the overall relative responsibilities of the persons or groups concerned for the condition of the land) as to make the attribution of responsibility between all the liability groups concerned unjust when considered as a whole, the Environment Agency should reconsider the attribution. In doing so, the Environment Agency should consult the other appropriate persons concerned.

7.91 If the Environment Agency then agrees that the original attribution would be unjust it should adjust the attribution between the liability groups so that it is just and fair in the light of all the circumstances. An adjustment under this paragraph should be necessary only in very exceptional cases.

Orphan Linkages

7.92 As explained above (e.g. in paragraphs 7.6 and 7.9), an “orphan linkage” may arise where: (a) no Class A or Class B persons can be found and the Secretary of State is not the appropriate person; or (b) those who would otherwise be liable are exempted by one of the relevant statutory provisions (i.e. sections 78J(3), 78K or 78X(3)).

7.93 In any case where only one significant contaminant linkage has been identified, and that is an orphan linkage, the Environment Agency should itself bear the cost of any remediation which is carried out (although there is a possibility that it may receive a contribution).

7.94 In more complicated cases, there may be two or more significant contaminant linkages, of which some are orphan linkages. Where this applies, the Environment Agency will need to consider each remediation action separately.

7.95 For any remediation action which is referable to an orphan linkage, and is not referable to any other linkage for which there is a liability group, the Environment Agency should itself bear the cost of carrying out that action.

7.96 For any shared action which is referable to an orphan linkage and also to a single significant pollutant linkage for which there is a Class A liability group, the Environment Agency should attribute all of the cost of carrying out that action to that Class A liability group.

7.97 For any shared action which is referable to an orphan linkage and also to two or more significant contaminant linkages for which there are Class A liability groups, the Environment Agency should attribute the costs of carrying out that action between those liability groups in the same way as it would do if the orphan linkage did not exist.

7.98 For any shared action which is referable to an orphan linkage and also to a significant contaminant linkage for which there is a Class B liability group (and not to any significant contaminant linkage for which there is a Class A liability group) the Environment Agency should adopt the following approach:

(a) where the remediation action is a common action the Environment Agency should attribute all of the cost of carrying out that action to the Class B liability group; and

(b) where the remediation action is a collective action, the Environment Agency should estimate the hypothetical cost of the action which would be needed to remediate separately the effects of the linkage for which that group is liable. The Environment Agency should then attribute the costs of carrying out the collective action between itself and the Class B liability

group so that the expected liability of that group does not exceed that hypothetical cost.

Section 8: The Recovery of the Costs of Remediation

8.1 The statutory guidance in this section is issued under section 78P(2) of the 1990 Act. It provides guidance on the extent to which the Environment Agency must seek to recover the costs of remediation which it has carried out and which it is entitled to recover.

8.2 The main relevant sections of the 1990 Act are:

- Section 78P(1): *"Where, by virtue of section 78N(3)(a), (c), (e) or (f) … the enforcing authority does any particular thing by way of remediation, it shall be entitled, subject to section 78K(6)… , to recover the reasonable cost incurred in doing it from the appropriate person or, if there are two or more appropriate persons in relation to the thing in question, from those persons in proportions determined pursuant to section 78F(7)…."*

- Section 78P(2): *"In deciding whether to recover the cost, and, if so, how much of the cost, which it is entitled to recover under subsection (1) above, the enforcing authority shall have regard - (a) to any hardship which the recovery may cause to the person from whom the cost is recoverable; and (b) to any guidance issued by the Secretary of State for the purposes of this subsection."*

8.3 This section also explains when the Environment Agency is prevented from serving a remediation notice. Under section 78H(5), the Agency may not serve a remediation notice if the Agency has the power to carry out remediation itself, by virtue of section 78N. Under that latter section, the Agency asks the hypothetical question of whether it would seek to recover all of the reasonable costs it would incur if it carried out the remediation itself. The Agency then has the power to carry out that remediation itself if it concludes that, having regard to hardship and the guidance in this chapter, it would either not seek to recover its costs, or seek to recover only a part of its costs. The relevant sections of the 1990 Act are:

- Section 78H(5): *"The enforcing authority shall not serve a remediation notice on a person if and so long as … (d) the authority is satisfied that the powers conferred on it by section 78 below to do what is appropriate by way of remediation are exercisable..."*

- Section 78N(3) provides that the enforcing authority has the power to carry out remediation: *"(e) where the enforcing authority considers that,*

were it to do some particular thing by way of remediation, it would decide, by virtue of subsection (2) of section 78P … or any guidance issued under that subsection, - (i) not to seek to recover under subsection (1) of that section any of the reasonable cost incurred by it in doing that thing; or (ii) to seek so to recover only a portion of that cost;...."

Section 8(a): Cost Recovery Decisions

8.4 This sub-section sets out considerations to which the Environment Agency should have regard when making any cost recovery decision. In view of the wide variation in situations which are likely to arise (e.g. due to variations in the history and ownership of land, and liability for its remediation) the guidance in this section sets out principles and approaches, rather than detailed rules. The Environment Agency should have regard to the circumstances of each individual case.

8.5 In making any cost recovery decision, the Environment Agency should have regard to the following general principles:

(a) The Agency should aim for an overall result which is as fair and equitable as possible to all who may have to meet the costs of remediation, including national and local taxpayers.

(b) The "polluter pays" principle should be applied with a view that, where possible, the costs of remediating pollution should be borne by the polluter. The Agency should therefore consider the degree and nature of responsibility of the relevant appropriate person(s) for the creation, or continued existence, of the circumstances which lead to the land in question being identified as radioactive contaminated land.

8.6 In general the Environment Agency should seek to recover all of its reasonable costs. However, the Agency should waive or reduce the recovery of costs to the extent that it considers this appropriate and reasonable, either: (i) to avoid any undue hardship which the recovery may cause to the appropriate person; or (ii) to reflect one or more of the specific considerations set out in the statutory guidance in subsections 8(b), 8(c) and 8(d) below. In making such decisions, the Agency should bear in mind that recovery is not necessarily an “all or nothing” matter (i.e. where reasonable, appropriate persons can be made to pay part of the Agency’s costs even if they cannot reasonably be made to pay all of the costs).

8.7 In deciding how much of its costs it should recover, the Environment Agency should consider whether it could recover more of the costs by deferring recovery and securing them by a charge on the land in question under section

78P. Such deferral may lead to payment from the appropriate person either in instalments (see section 78P(12)) or when the land is next sold.

Information for Making Decisions

8.8 In general, the Environment Agency should expect anyone who is seeking a waiver or reduction in the recovery of remediation costs to present any information needed to support such a request.

8.9 In making any cost recovery decision, the Environment Agency should consider any relevant information provided by the appropriate person(s). The Agency should also seek to obtain such information as is reasonable, having regard to: (i) accessibility of the information; (ii) the cost, for any of the parties involved, of obtaining the information; and (iii) the likely significance of the information for any decision.

8.10 The Environment Agency should, in all cases, inform the appropriate person of any cost recovery decisions taken, explaining the reasons for those decisions.

Cost Recovery Policies

8.11 The Environment Agency may choose to adopt and make available a policy statement about the general approach it intends to take in making cost recovery decisions.

Section 8(b): Considerations Applying both to Class A & Class B Persons

8.12 Paragraphs 8.13 – 8.22 below set out considerations to which the Environment Agency should have regard when making any cost recovery decisions, irrespective of whether the appropriate person is a Class A person or a Class B person. They apply in addition to the general issue of the "hardship" which the cost recovery may cause to the appropriate person.

Commercial Enterprises

8.13 Subject to the specific circumstances set out below, the Environment Agency should adopt the same approach to all types of commercial or industrial enterprises which are identified as appropriate persons. This applies whether the appropriate person is a public corporation, a limited company (whether public or private), a partnership (whether limited or not) or an individual operating as a sole trader.

Threat of business closure or insolvency

8.14 In cases where a small or medium-sized enterprise is the appropriate person, or is run by the appropriate person, the Environment Agency should consider: (i) whether recovery of the full cost attributable to that person would mean that the enterprise is likely to become insolvent and thus cease to exist; and (ii) if so, the cost to the local economy of such a closure.

8.15 Where the cost of that closure to the local economy appears to be greater than the costs of remediation which the Environment Agency would have to bear itself, the Agency should consider waiving or reducing its costs recovery to the extent needed to avoid making the enterprise insolvent.

8.16 However, the Environment Agency should not waive or reduce its costs recovery where: (a) it is satisfied that an enterprise has deliberately arranged matters so as to avoid responsibility for the costs of remediation; (b) it appears that the enterprise would be likely to become insolvent whether or not recovery of the full cost takes place; or (c) it appears that the enterprise could be kept in, or returned to, business even it does become insolvent under its current ownership.

8.17 For these purposes, a "small or medium-sized enterprise" should be taken to mean an independent enterprise which matches the definition of a “micro, small and medium-sized enterprise” as established by the European Commission Recommendation of 6 May 2003, and any updates of that definition as may happen in future. (Under the 2003 definition this would cover any such enterprise with fewer than 250 employees, and either an annual turnover less than or equal to €50 million, or an annual balance sheet total less than or equal to €43 million.

8.18 The Environment Agency should seek to be consistent with any relevant policy on assisting enterprise or promoting economic development of the local authority in whose area the radioactive contaminated land is situated (if such a policy exists). The Agency should consult the local authority and take its views into consideration in making its cost recovery decisions.

Trusts

8.19 Where the appropriate persons include persons acting as trustees, the Environment Agency should assume that such trustees will exercise all the powers which they have, or may reasonably obtain, to make funds available from the trust, or from borrowing that can be made on behalf of the trust, for the purpose of paying for remediation. The Agency should, nevertheless, consider waiving or reducing its costs recovery to the extent that the costs of remediation to be recovered from the trustees would otherwise exceed the amount that can be made available from the trust to cover those costs.

8.20 However, the Environment Agency should not waive or reduce its costs recovery: (a) where it is satisfied that the trust was formed for the purpose of avoiding paying the costs of remediation; or (b) to the extent that trustees have personally benefited, or will personally benefit, from the trust.

Charities

8.21 Since charities are intended to operate for the benefit of the community, the Environment Agency should consider the extent to which any recovery of costs from a charity would detrimentally impact that charity's activities. Where this is the case, the Agency should consider waiving or reducing its costs recovery to the extent needed to avoid such a consequence. This approach applies equally to charitable trusts and to charitable companies.

Social Housing Landlords

8.22 The Environment Agency should consider waiving or reducing its costs recovery if: (a) the appropriate person is a body eligible for registration as a social housing landlord under section 2 of the Housing Act 1996 (for example, a housing association); (b) its liability relates to land used for social housing; and (c) full recovery would lead to significant financial difficulties for the appropriate person, such that the provision or upkeep of the social housing would be jeopardised significantly. The extent of the waiver or reduction should be sufficient to avoid any such financial difficulties.

Section 8(c): Specific Considerations Applying to Class A Persons

8.23 This sub-section sets out specific considerations to which the Environment Agency should have regard in cost recovery decisions where the appropriate person is a Class A person.

8.24 In applying the approach in this sub-section, the Environment Agency should consider whether or not the Class A person is likely to have profited financially from the activity which led to the land being determined to be radioactive contaminated land (e.g. as might be the case if the contamination resulted from a business activity). If the person did profit, the Agency should generally be less willing to waive or reduce costs recovery than if no such profits were made.

Where other potentially appropriate persons have not been found

8.25 In some cases where a Class A person has been found, it may be possible to identify another person who caused or knowingly permitted the presence of the significant contaminant in question, but who cannot now be found for the purposes of treating that person as an appropriate person (as might be the case if a company has been dissolved). In such cases, the Environment

Agency should consider waiving or reducing its costs recovery from a Class A person if that person demonstrates that:

(a) another identified person, who cannot now be found, also caused or knowingly permitted the significant contaminant to be in, on or under the land; and

(b) if that other person could be found, the Class A person seeking the waiver or reduction of the Agency's costs recovery would either: (i) be excluded from liability by virtue of one or more of the exclusion tests set out in the Section 7 of this Guidance; or (ii) the proportion of the cost of remediation which the appropriate person has to bear would have been significantly less, by virtue of the guidance on apportionment set out in Section 7.

8.26 Where an appropriate person is making a case for the Environment Agency's costs recovery to be waived or reduced by virtue of paragraph 8.25 above, that person should provide evidence to the Agency that a particular person, who cannot now be found, caused or knowingly permitted the significant contaminant to be in, on or under the land. The Agency should not regard it as sufficient for the appropriate person concerned merely to state that such a person must have existed.

Section 8(d): Specific Considerations Applying to Class B Persons

8.27 This sub-section sets out specific considerations relating to cost recovery decisions where the appropriate person is a Class B person.

Costs in Relation to Land Values

8.28 In some cases, the costs of remediation may exceed the likely value of the land in its current use (as defined in Section 3 of this Guidance) after the required remediation has been carried out. In such cases, the Environment Agency should consider waiving or reducing its costs recovery from a Class B person if that person demonstrates that the costs of remediation are likely to exceed the value of the land. In this context, the "value" should be taken to be the value that the remediated land would have on the open market, at the time the cost recovery decision is made, disregarding any possible blight arising from the contamination.

8.29 In general, the extent of the waiver or reduction in costs recovery should be sufficient to ensure that the costs of remediation borne by the Class B person do not exceed the value of the land. However, the Environment Agency should seek to recover more of its costs to the extent that the remediation would result

in an increase in the value of any other land from which the Class B person would benefit.

Precautions taken before acquiring a freehold or a leasehold interest

8.30 In some cases, the Class B person may have been unaware that the land in question may be radioactive contaminated land when they acquired it. Alternatively, the person may have taken a risk that the land was not contaminated, or they may have taken some precautions to reduce the risk of acquiring land which is contaminated.

8.31 The Environment Agency should consider reducing its costs recovery where a Class B person who is the owner of the land demonstrates that:

(a) the person took such steps (prior to acquiring the freehold or accepting the grant of assignment of a leasehold) as would have been reasonable at that time to establish the presence of any contaminants;

(b) when the person acquired the land (or accepted the grant of assignment of the leasehold) they were nonetheless unaware of the presence of the significant contaminant now identified, and could not reasonably have been expected to have been aware of its presence; and

(c) the Agency considers it would be reasonable, taking into account the interests of national and local taxpayers, that the person should not bear the whole cost of remediation.

8.32 The Environment Agency should bear in mind that the safeguards which might reasonably be expected to be taken will be different in different types of transaction (for example, acquisition of recreational land as compared with commercial land transactions) and as between buyers of different types (for example, private individuals as compared with major commercial undertakings).

Owner-occupiers of Dwellings

8.33 Where a Class B person owns and occupies a dwelling on the radioactive contaminated land in question, the Environment Agency should consider waiving or reducing its costs recovery if the person satisfies the Agency that, at the time the person purchased the dwelling, the person did not know, and could not reasonably have been expected to have known, that the land was adversely affected by presence of the contaminant(s) in question. Any such waiver or reduction should be to the extent needed to ensure that the Class B person in question bears no more of the cost of remediation than it appears reasonable to impose, having regard to the person’s income, capital and outgoings. Where the person has inherited the dwelling or received it as a gift,

the Agency should consider the situation at the time when the person received the property.

8.34 Where the radioactive contaminated land in question extends beyond the dwelling and its curtilage, and is owned or occupied by the same appropriate person, the approach in paragraph 8.33 above should be applied only to the dwelling and its curtilage.

GLOSSARY

Deterministic effect: type of health effect (such as a radiation-induced cataract of the eye) which occurs following a dose of radiation above a certain level (a 'threshold' level) with the severity of the health effect dependent on the level of the dose.

Detriment: principally means a health detriment, but may also include other detriments, for example, a detriment associated with blight.

Emergency Exposure Situation: a situation of exposure due to an emergency.

Enforcing Authority: defined in section 78A(9) in relation to a special site, as the Environment Agency.

Effective dose: an energy measure which applies a weighting factor to the equivalent dose to account for the different effectiveness of the dose in causing damage to different human tissues (e.g. skin, eyes). It is measured in Sieverts.

Equivalent dose: an energy measure which applies a weighting factor to the absorbed dose to account for the different effectiveness of various types of radiation (alpha, beta, gamma, neutron) in damaging human tissue. It is measured in Sieverts.

Existing Exposure Situation: an exposure situation that already exists when a decision on its control has to be taken and which does not call or no longer calls for urgent measures to be taken.

Health detriment: is defined in Article 4 of the 2013 BSSD as: "a means reduction in length and quality of life occurring in a population following exposure, including those arising from tissue reactions, cancer and severe genetic disorder."

Justification: decisions introducing or altering an exposure pathway shall be justified in the sense that they should do more good than harm (see Section 6.38 of this Guidance).

Optimisation: radiation protection of individuals subject to public exposures must be optimised with the aim of keeping the magnitude of individual doses,

the likelihood of exposure and the number of individuals exposed as low as reasonably achievable taking into account the current state of technical knowledge and economic and societal factors (see Section 6.38 of this Guidance).

Practice: is defined in Article 4 of the 2013 BSSD as: “a human activity that can increase the exposure of individuals to radiation from a radiation source and is managed as a planned exposure situation.” Section 78A(9) of the 1990 Act says this meaning applies for the purposes of Part 2A of the 1990 Act.

Protective measure: measures, other than remedial measures, for the purpose of avoiding or reducing doses that might otherwise be received from contaminated land.

Remedial measure: the removal of a radiation source or the reduction of its magnitude (in terms of activity or amount) or the interruption of exposure pathways or the reduction of their impact for the purposes of avoiding or reducing doses that might otherwise be received from contaminated land.

Remediation: is defined in paragraphs 6.2 and 6.7 of this guidance.

Stochastic effect: the likelihood of a radiation-induced health effect (the principal one being radiation-induced cancer) which may be assumed to be linearly proportional to the radiation dose over a wide range of doses and where the severity of the health effect is not dependent on the level of the dose.

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