

Third Consultation on the Land Management Guidance (LMGv2) – Log of comments					
Name	Organisation	COMMENTS			
		Sub-section	Sub-section paragraph	Page	Comment
PRELIMINARIES (preface acknowledgements executive summary abbreviations)					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Acknowledgements			See General comments below.
SECTION 1 – INTRODUCTION					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	1 (All)			See General comments below.
Mike Pearl (O)	UKAEA	1.1	Whole Section	8-9	This is poorly organised. The last sentence of 1 st paragraph is irrelevant to the scope. The 3 rd paragraph 'The most common...' does not belong here at all in its present form – I assume it is meant to explain 'non-nuclear defence sites' but it doesn't say so.
Mike Pearl (O)	UKAEA	1.1	Para. 1	8	The opening paragraph should be paragraph 4. As it stands the impression is that the guidance is about radioactive contamination, which is then contradicted by paragraph 4.
Mike Pearl (O)	UKAEA		4		Does the guidance apply to land adjacent to nuclear sites which has been impacted by contamination from the nuclear site?
Mike Pearl (O)	UKAEA	1.2	3	9	Although not prescriptive how can the guidance be used when sites may not be starting from a blank sheet of paper and may already have a long way down the road of site characterisation with little consultation?
Marion Hill	Independent	1.4			Section 1.4 would need changing if the structure of the document is changed as suggested in my general comments.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	1.4	Top bullet	9	Should mention that updating of the characterisation guidance is in progress.
Mike Pearl (O)	UKAEA	1.4		9	Part 2 is confused by amplifying the Key Principles in a section which is really about outlining a process – see also comments in the "General Comments" section below.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	1.4	Final para	9	Separate para needed for explaining context of citizens' guide.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	1.4	Final para	9	Inappropriate place to introduce the 'definition' of 'people'.
Mike Pearl (O)	UKAEA	1.4	2		This paragraph mentions other SAFEGROUNDS documents, but none of these docs are mentioned in the flow diagrams on p15, and only some in the flow diagram on page p19.
Mike Pearl (O)	UKAEA	1.4	3	10	...It has been prepared for <i>people</i> ... "Why italics for "people" ?
Marion Hill (I)	Independent	1.5.1			In Section 1.5.1, the addition of "(including groundwater)" has made the definitions incomplete and badly worded. What is required is to add a sentence after the definitions to explain that the phrase "in, on or under" means that soils, rocks, groundwater and below ground structures are all included. It might also be sensible to explain why disposed radioactive (and non-radioactive) wastes are excluded.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	1.5.1	Definitions	9	Clumsy insertion of '(including groundwater)'. Better to say 'any land in, on or under which (including groundwater)....'

Mike Pearl (O)	UKAEA	1.5.1	1	10	Contaminated land, Radioactively contaminated land and Non-radioactively Contaminated Land Definitions. It's not the land that's "in, on or under", it's the radioactive or chemical material. Thus this should be "any radioactive or chemical material in, on or under land (or in groundwater)"
Pete Booth (O)	(Nexia Solutions)	1.5	1.5.1	Page 10	The definitions used for non-radioactive contamination contradict UK policy and are therefore potentially misleading
Mike Pearl (O)	UKAEA	1.5.1	1	10	What about gaseous contaminants (eg radon).
Mike Pearl (O)	UKAEA	1.5.2	3	11	Regulatory Framework Paper – reference required.
Pete Booth (O)	(Nexia Solutions)		1.5.2	Page 11	We would not classify detecting contamination as managing it. The first step in managing is to characterise not just know it is there.
Mike Pearl (O)	UKAEA	1.5.3		11	An option is something that can be chosen. A package of choices will form a strategy that may include different tactics for different parts of a site. See end.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	1.5.4	Para 2	11	This needs some attention and will no doubt require a few re-drafts before being agreed. The main concerns I would identify with the current draft are: <ul style="list-style-type: none"> Why is 'involvement' defined to include 'participation in decision-making processes', given what the next sentence says? Maybe the phrase 'participation in processes that inform decision-making' would be more accurate? Why is it considered that 'engagement' excludes participation in processes that inform decision-making? I suspect this is a perception issue. Perhaps a better wording would be 'This is because, while "engagement" usually includes communication, provision of information and consultation, it can be perceived to exclude participation in processes that inform decision-making.'
Pete Booth (O)	(Nexia Solutions)		1.5.4	Page 11	The word "stakeholder" has too much breadth of people to whom this may apply to. It may be beneficial to sub-divide this category down into say "regulators", "operational stakeholders" (to refer to site owners etc) and "other stakeholders" (eg NGO's etc)
Mike Pearl (O)	UKAEA	1.5.4	1	11	It is important that the different parts within an organisation are considered as stakeholders. There is little point in management adopting a strategy that the implementation team cannot/will not implement.
SECTION 2 – KEY PRINCIPLES FOR THE MANAGEMENT OF CONTAMINATED LAND					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	2	All KPs	12	The following text follows the Key Principles in the web-based version of LMGv1: "The key principles apply primarily to options for the long-term management of contaminated land. The extent to which some of the principles are to be applied depends on the scale of the contaminated land problem." The pdf version of LMGv1 has a different text: "Most of the key principles apply primarily to options for the long-term management of contaminated land. Some apply throughout the process of identifying, implementing and validating a management option; others are mainly relevant at particular stages." These previously-agreed (?) texts should not be omitted from LMGv2 without debate, perhaps through presentation of text options at the 6 November workshop.
Mike Pearl (O)	UKAEA	2	Last paragraph... "The	12	Not necessary. Would be better to amplify the meaning of the Key Principle in this section. The "flags" in the flow diagrams act as the means for cross referencing. See comment in "General Comments".

			application..."		One UKAEA responsee was confused why later sections are not in the same order as the principles – but this is a reflection of the poor structure of Part 2 and 3.
Mike Pearl (O)	UKAEA	Principle 4		12	The requirement to monitor and control all known or suspected contamination immediately is impractical. Finding all the suspected contamination on a large site takes many years. It is reasonable to take steps to control contamination immediately it becomes known, and to have in place a timely programme for the investigation of all suspected contamination.
SECTION 2 – KEY PRINCIPLES FOR THE MANAGEMENT OF CONTAMINATED LAND					
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Hugh Richards (O)	Magnox Electric Ltd (North Sites)	2	KP2	12	I think it should be made explicit that KP2 has changed since LMGv2 and there should be a bit of background on why this has been done and how it was agreed. The new wording of KP2 is a welcome improvement on the original. However, there may continue to be differences of interpretation of the terms ‘involvement’ and ‘planning and decision-making processes’.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)		KP4	12	<p>I realise it is late in the day to point this out, but I do question how one can monitor and control ‘suspected’ contamination, especially if ‘monitor’ means ‘make repeated measurements’. If ‘suspected’ contamination can be detected by monitoring, it becomes ‘known’ contamination. If contamination is only ‘suspected’, there is no basis on which to design specific ‘control’ measures.</p> <p>I suspect that the current wording was intended to promote early investigation/ characterisation of ‘suspected’ contamination, but this is different from ‘monitor and control’.</p>
SECTION 3 – OVERVIEW OF THE PROCESS OF MANAGING CONTAMINATED LAND					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3 Stage 1	3 rd para	13	Suggested re-wording: “At this stage, the site owner/operator should also have identified the relevant legislation and statutory and regulatory guidance (see Section 5).” (I would like to think the owner/operator would know what regulatory regimes apply, regardless of whether the SAFEGROUNDS guidance applies.)
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3 Stage 2	1 st para and Fig 1	13	I think that in the nuclear industry context, the use of the term ‘plan’ in ‘Stage 2’ will be unclear, because it is usually used to mean plans for execution of work, such as project plans, Lifetime Plans, etc. ‘Stage 2’ is really about formulation of ‘arrangements’ which are to be sustained throughout the contaminated land management process.
Mike Pearl (O)	UKAEA	3		13	Needs another paragraph at the beginning to say that on many nuclear and defence sites the SAFEGROUNDS process should be integrated into existing plans for the site eg decommissioning and restoration plans. Also that most sites will not start at the beginning of the SAFEGROUNDS process because they will have

					already done investigation and remediation work before SAFEGROUNDS came along.
Mike Pearl (O)	UKAEA	Stage 2		13	The formulation of plans must include how contaminated land management fits into the wider planning of the site eg planning for decommissioning and restoration, delicensing etc
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3 Stage 3		14	See comment above on KP4.
Mike Pearl (O)	UKAEA	Stage 3		14	Stage 3 needs to be more fully explained. Characterisation in this context needs to be defined (the definition in the glossary will not suffice). The implication from what is written is that characterisation is required before any short-term management strategy can be produced. What sort of characterisation. Surely the level of characterisation that's referred to here is a desk review of existing documentation including monitoring records, building histories, previous investigations etc in order to build a preliminary understanding of whether there is a likelihood of any contamination and its potential impacts (ie to develop a preliminary [and probably simple] conceptual model). The short-term strategy will then be based on this understanding.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3	Figure 1	15	The flow diagram really needs a box or at least a bullet point dealing with implementation. The 2 nd bullet in 'Stage 5' says 'identify' options for each area, but does not go on to say 'implement' or 'validate'
Pete Booth (O)	(Nexia Solutions)		Fig 1	Page 15	Which "stakeholders" are consulted at stage 2 would need careful consideration (ties in with previous comment re too broad a definition)
Mike Pearl (O)	UKAEA	Generic flow diagram		15	See comment above. Because the flow diagram is generic and simplistic it ignores the "understanding" stage (development of a conceptual model) and the feed back loops between the different degrees of characterisation. The impression given is that immediate control can only follow full characterisation. Note: Some of the text of the flow diagram on the safegrounds website have been chopped-off the second box "Formulate Plans".
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3 Stages 4 & 5		15	It is unhelpful to lump together 'Stages 4 & 5' under one heading. This sub-section needs a re-write to deal with site-wide strategy, area-specific strategy, area-specific technical options, implementation, verification/validation, etc, in a way that is fully consistent with the SAFEGROUNDS options comparison guidance.
Mike Pearl (O)	UKAEA	Generic flow diagram		15	Formulate plans – the bullet points have ignored that these plans should integrate into the plans for the site ie the decommissioning and restoration strategy, end states etc.
Mike Pearl (O)	UKAEA	Stages 4&5		15	Bottom of page – suggest replace 'constraints' with 'considerations', a less negative word. 'Constraint' was considered inappropriate in this context in Dounreay's strategy.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3 Stages 4 & 5		15	The SAFEGROUNDS options comparison guidance is a challenging read with a fairly specialised practitioner audience in mind (I assume). Some of the main messages from the options comparison guidance (especially regarding levels of involvement of external stakeholders) need to be summarised here in LMGv2.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	3	Stage 5½?	15	On many nuclear sites, an interim state is planned which will last for more than a generation. In practice, decisions about final end-states will be for later generations to make. LMGv2 should acknowledge this and make it more explicit that it may be appropriate to see the contaminated land management process going into a 'passive' phase once the site has reached the interim state.
Mike Pearl (O)	UKAEA	Stage 6		16	Important to acknowledge that there may be intermediate states on the way to the end-state and the strategy needs to consider how these relate.
Mike Pearl (O)	UKAEA	Other			Add Section 4 to Part 1

SECTION 4 – IDENTIFYING MANAGEMENT STAGES					
Mike Pearl (O)	UKAEA				Sections 4-9 aren't really Part 2 – see comment in "General Comments"
Mike Pearl (O)	UKAEA				<p>Strange section ! better if it was integrated/rationalised with Section 3 – because it is still part of an overview.</p> <p>If the objective of Section 4 was to show that the complex flow diagram is a derivative of the generic flow diagram, then use coloured blocks to show which part of the generic diagram apply to the complex diagram.</p>
Marion Hill (I)	Independent				<ul style="list-style-type: none"> If the suggestion for two volumes is adopted, this section should be removed completely (including the flow diagram for complex sites). Relevant material should be included for specific types of site in the new volume 2. In any case, the complex sites flow diagram needs rethinking, at least for nuclear sites that are being decommissioned and delicensed. It needs to show how to achieve the agreed interim and final end states, whilst meeting regulatory requirements for radioactively and non-radioactively contaminated land.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4		17	<p>The process of sub-dividing a site (or land-holding) into areas or zones needs more attention. As perceive it, there are two basic approaches that can be adopted:</p> <ul style="list-style-type: none"> If land contamination is an over-riding issue at a site, then areas/zones may be defined on the basis of the types and locations of contamination (i.e. 'contaminated areas'). My sense is that this is the 'paradigm' in mind in LMGv2. Area boundaries may be difficult to define and may overlap. If there are clear land-use requirements around which the land contamination needs to be dealt with, then zones may be defined primarily on the basis of land use (either current or future) and perhaps whether the land is within or outside the current Nuclear Licensed Site. Land uses could include footprints of new buildings or existing buildings that need to be retained for long periods, areas of key site infrastructure, areas of existing or planned waste disposal facilities, and areas for which a new land use is planned. Zone boundaries should be easy to define and there should be no need for them to overlap. <p>Approaches combining aspects of both the above may be appropriate for some sites. A factor in choosing how to sub-divide a site may be the extent to which contamination may be mobile. If the boundary of a mobile contamination 'plume' is likely to change (outward or inward) within the timescales of interest, this will make the definition of a 'contaminated area' boundary more difficult. However, it will also raise the possibility that the strategy for dealing with the mobile contamination could cut across a number of 'land use' zones.</p>
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4		17	The discussion towards the bottom of this page would be a lot easier to follow if, for example, Fig 1 used letters for different stages and Fig 2 used numbers (or vice versa).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4		17	It should be stated that the two-stage process of addressing high priority areas first and then 'the rest' is conceptual, and may be an over-simplification for complex sites, where many phases of characterisation and remediation work may proceed at varying and perhaps overlapping timescales.
Mike Pearl (O)	UKAEA	Flow Diagram for Complex Sites and description on p17-18			<p>Section 4 Text: Does not really explain the process in terms of developing an understanding of contamination on a site and its characteristics, then its management. Text in Section 4: Stage 2 – include consideration of the wider context of the site (eg development, decommissioning, restoration, end states etc).</p>

					<p>Flow Diagram - Stage 3,4 and 5 are slightly wrong. Surely the process is:</p> <p><u>Stage 3: Initial Site Characterisation</u></p> <ul style="list-style-type: none"> ○ Review all existing information ○ Walk over survey, possibly gamma survey (or do this as part of Stage 7) ○ Develop an initial conceptual model <p><u>Stage 4: Classify Areas</u> (based on desk view and the preliminary conceptual model)</p> <p><u>Stage 5: Develop and Implement short term management actions</u></p> <ul style="list-style-type: none"> ○ Develop strategy based on results from steps 3 and 4. ○ Implement short term control and monitoring measures. <p>Note: Stage 5 is about KP4 – as shown in the box. It means “immediate action”. Develop strategy in this context means if you suspect there to be contam put in place a quick measure to control and monitor the problem. Surely “strategy” in this sense means a quick plan which will reduce impact eg such as access restriction. It doesn’t mean spend loads of time optioneering. This plan/strategy is based on the preliminary conceptual model – which needs to be mentioned in the text on p17.</p> <p>Note: Conceptual model has not been defined either in the text or the glossary.</p> <p>Text – should say a few words on what is meant by characterisation at stage 3 – as shown in the flow diagram, characterisation generally refers to desk studies, not boreholes and sampling.</p> <p>Text – paragraph 6 p17– “Where contam is found that presents an immediate risk” – you don’t know the reality at this stage as its only a desk review. Replace by: “Where the desk review indicates contam that presents a possible immediate risk”.....</p> <p>Flow Diagram – Step 7 needs to include a bullet point which says refine the conceptual model (this is hidden behind “evaluate results”). Text – reflect the above point.</p> <p>Text – paragraph 8. Needs to say that the long term management option will consider the understanding of the contaminant behaviour (ie will take account of the refined conceptual model).</p> <p>Text – Feedback loops - the process between steps 7, 8 and 9 is not necessarily linear. The text needs to say this ie feedback loops from Step 8 or 9 to to Step 7 may be required before decisions on appropriate management.</p> <p>Text – Last paragraph – “On all sites...” This needs to be said in one of the early paragraphs (even highlight it in bold !!) Decommissioning, characterisation, demolition and remediation are processes that interact strongly and there will need to be a clear framework to manage their interaction – more on this would be useful.</p>
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	19	Why does ‘Stage 2’ include ‘outline strategies’? - What ‘strategies’?

Pete Booth (O)	(Nexia Solutions)		Fig 2	Page 19	I think the way that Box 4 now has three subdivisions is a bit confusing, especially with the arrows.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	19	I think the text of the heading of the box for 'Stage 4' should read "Classify areas/zones and develop preliminary conceptual models for each area/zone"
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	20	'Stage 7' should say "Detailed characterisation of some or all areas/zones, starting with high priority ones"
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	20	Is it the intent that 'Stage 8' in this Figure is 'strategic' and 'Stage 9' technical options comparison (cf options comparison guidance)?
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	20	What is the (pre-existing?) 'strategy' referred to in the 'Stage 8' box?
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	21	I think the 3 rd bullet in 'Stage 11' should read "Identify any need for further actions"
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	21	'Stage 15' should read "Validate long-term management options (P1, P3) for each remaining area"
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	4	Fig 2	21	Need for 'Stage 15½' (see comment above – Section 3 p15) on interim states.
SECTION 5 – REGULATORY REGIMES AND GUIDANCE					
Marion Hill (I)	Independent				<ul style="list-style-type: none"> Perhaps combine and simplify Tables 1 and 2. Here and elsewhere, capital letters have been inserted in some places for Environment Agency when what is meant is the relevant environment agency, ie the EA, SEPA or EHS(NI), depending where the site is. Note also that the local authorities have no role in identifying or designating radioactive contaminated land for Part 2A in Scotland, and there is no Part 2A in Northern Ireland (see regulatory framework paper).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	5	2 nd -last para	23	Should end "... if the land is formally determined as being 'contaminated' under Part 2A".
Mike Pearl (O)	UKAEA	5	3	23	RSA for excavated wastes and discharges. References to HSE (SAPS).
Mike Pearl (O)	UKAEA	5	3	23	It would be very useful to have one full reference to the Environmental Protection Act as amended – an innocent person reading Part II of the 1990 Act will be seriously mis-informed about the current legal position.
Mike Pearl (O)	UKAEA	5	4	23	Under Part IIA it is the Local Authority who are the principle regulators for chem. contam until designated as a special site.
Mike Pearl (O)	UKAEA		5	23	The discussion of special sites is over-simplified. For a nuclear licensed site to become special it has first to be identified by the local authority as contaminated by reason of chemicals rather than radioactivity, and then determined by the environment agency (EA/SEPA) as special, by reason of it being nuclear licensed. As Scottish law stands at 10/10/07 (and I think it is the same in England) it cannot be determined to be either contaminated or special solely on the grounds of radioactivity, if it is nuclear licensed or is in the period of responsibility after de-licensing.
Mike Pearl (O)	UKAEA		5, 6	23	The 1 st sentence of para. 6 logically belongs with para. 5. The second sentence should stand alone, since it, and IRR, apply to all sites.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	5	Last para	23	Also note new radioactive contaminated land regulations for Scotland are now in place (Oct 2007).

Hugh Richards (O)	Magnox Electric Ltd (North Sites)	5	Table 1	24	Need to show that Planning regime (including consideration of land affected by contamination) applies to at least some new developments on Nuclear Licensed Sites (e.g. construction of new waste storage buildings).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	5	Table 1	24	Should mention potential role of Water Resources Act and equivalent in Scotland for groundwater contamination.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	5	Table 2	25	Should mention statutory consultee role of EA/SEPA for radioactive contamination on nuclear-licensed sites. Also, a column dealing with regulation of radioactive waste would be helpful.
Mike Pearl (O)	UKAEA		Table 2	25	The local council is the regulator of first resort of non-radioactive contamination.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	5	Table 3	26	NIA65 line should include HSE de-licensing criterion (2005). It is perhaps also worth mentioning that the HSE SAPs for radioactive contaminated land effectively supersede the guidance in Appendix 8 of the 2001 radioactive waste management guidance.
SECTION 6 – PROTECTION OF PEOPLE AND THE ENVIRONMENT					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6	General		This section really concentrates on protection of human health, but does not consider how protection of the wider environment is regulated or assessed.
Pete Booth (O)	(Nexia Solutions)	Section 6		Page 27	The author starts to introduce us to the key principles and recites the key principle within a box. Would it be useful to say which key principle it is within the title (ie Key Principle 1 – Protection of People and the Environment) and then the strap line links in better.
Mike Pearl (O)	UKAEA	6.1	5		What is the “concept of sustainability” – add a footnote to define, or at least give an indication of what is meant by sustainability in the context of managing contaminated land.
Mike Pearl (O)	UKAEA	6.1	7		Would be useful to refer to Cm2919
Pete Booth (O)	(Nexia Solutions)	6.2	Para 5	Page 28	The sentence that only Part 2A can be used to compel a landowner to remediate is misleading as other statutes (eg Groundwater Regs) could also be used as applied as necessary
Marion Hill (I)	Independent	6.2			<ul style="list-style-type: none"> In the first full para on page 28, the reference NRPB, 1998 <u>must</u> be removed (NRPB was not, and HPA is not, a regulator). The reference to Figure 3 should be redrafted as: ‘Figure 3 shows the various risk levels used in the regulation of radioactively contaminated land’ (see also comment below). The last full para on page 28 should be deleted. It is incorrect for Scotland and Northern Ireland (see comment above) and the material about risk assessments belongs in the site-type specific guidance. The last two paras of the section should be deleted. The distinction between practices and interventions is irrelevant to good practice guidance and confusing for everyone. Furthermore, the terms are about to be dropped by ICRP (recommendations due out in the next few weeks). The LMG should deal with the practicalities of choosing management options for each type of site, not esoteric radiological protection concepts.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	General		This sub-section should include a reference to the application of the ‘broadly acceptable risk’ concept and the continued application of ALARP at assessed risks below one in a million in the HSE 2005 de-licensing criterion.
Mike Pearl (O)	UKAEA			27	Section in the wrong place – needs to be associated with the Key Principle section – as an amplification, or at least before the process sections.
Mike Pearl (O)	UKAEA	6.2	1		It would be useful to explain the difference between ALARP and ALARA here. The difference in ordinary English is slight. ‘Achievable’ is less constrained than ‘practicable’ in English.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Para 1	27	It would be helpful to say where the principles of ALARA and ALARP are derived from, in particular in relation to legislation and regulatory guidance.

Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Para 2	27	2 nd sentence should read "For example, legal dose limits are set...."
Mike Pearl (O)	UKAEA	6.2	3	28	It would be helpful to have the full wording of the guidance here, not an abbreviation.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Para 6	28	Please say something about how radioactive contamination is dealt with under the Planning regime.
Mike Pearl (O)	UKAEA	6.2	7		"Part 2A makes the Local Authority responsible for ..." This is correct but might be misleading unless this is also reflected in Section 5 on regulations
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Para 6	28	This paragraph needs attention. The term 'radioactively contaminated land' (1 st sentence) should be explicitly identified as 'in the SAFEGROUNDS sense'. There seems to be a contradiction between the second sentence which indicates that in some (in practice most) cases, Part 2A will not apply, and the first sentence which talks about 'investigation under the Part 2A regime'. The final sentence sets out ay that there is no compulsion to remediate if the Part 2A criteria are not met, but then uses 'have to', which implies some form of compulsion. My understanding is that the potential 'person' to do the remediation under Part 2A is not necessarily the landowner (Part 2A considers 'Class A' and 'Class B' persons). LMGv2 needs to summarise this fairly complex regulatory regime, but accurately (perhaps with an explicit sign-post reference to the regulatory regimes paper.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Para 8	28	1 st sentence should clarify that the 'extension of the Part 2A regime' was to cover radioactive contamination.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Final para	29	2 nd sentence should probably end '.... Previously used for a practice'
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.2	Final para	29	In illustrating the principles of 'intervention' and 'practice' it may be helpful to draw the parallel with HPA advice on radon in existing homes and modern building regulations standards to mitigate radon.
Marion Hill (I)	Independent	6.3			<ul style="list-style-type: none"> This section needs to be shortened and redrafted to say that the recommended approach for non-radioactive contamination is that in CLR11, with stakeholder involvement in deciding when further action is necessary and when it is not, as well as in deciding what action to take. It should then be pointed out that it is not appropriate to use the CLR11 approach for radioactive contamination because it is not consistent with regulatory approaches for radioactivity, particularly not with the ALARA and ALARP principles. It could be noted that on nuclear sites where HSE is the regulator, it is actually potentially illegal to use the CLR11 approach because "the law does not recognise an acceptable region other than when ALARP has been met" (see NSD Guidance on the Demonstration of ALARP, Technical Assessment Guide T/AST/005). It should then be recommended that sites with radioactive and non-radioactive contamination should have an integrated strategy for managing all their land, based on the Section 6.2 approach for areas where there is radioactive contamination and areas where there is mixed contamination, and the CLR11 approach for areas where there is only non-radioactive contamination. Figure 3 should be retitled as: 'Illustration of Risk Levels used in the Regulation of Contaminated Land'. In the figure 'standard' should be replaced by 'level'.
Pete Booth (O)	(Nexia Solutions)	6.3	Para 1	Page 29	Non rad contamination is defined as "significant possibility of significant harm" or "SPOSH", not "unacceptable risk".
Pete Booth (O)	(Nexia Solutions)	6.3	Para 1	Page 29	The view on stakeholders is always considered in non-rad contamination as regulators are always the final arbiters under planning or Part 2A and have to be consulted with to determine SPOSH. It is therefore misleading to intimate that CLR 11 is so inflexible that this does not and cannot occur.

Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.3	1 st and 2 nd paras	29	This is a difficult topic to present clearly, but not impossible. However, the current draft is hard to follow. The definition of 'unacceptable risk' given in the 1 st sentence of para 1 is counter-intuitive. If it was a definition of 'acceptable risk', or 'the boundary between acceptable and unacceptable risk', it would make more sense. Part of the problem is that there may be a calculated risk (based on conservative assumptions) which exceeds the boundary, leading to the need for more detailed risk assessment and (potentially) comparison of options, but when the more detailed risk assessment is done, it may turn out that the actual risks are below the 'the boundary between acceptable and unacceptable risk' (i.e. acceptable after all). This needs more explanation, without redefining terms that already have established (if not intuitive) definitions.
Pete Booth (O)	(Nexia Solutions)	6.3	Para 2	Page 29	Assessment criteria used in non-rad are not "absolute" in as much as they can be linked to current and potential land use allowing a management option as land use can be altered to fit in with the type and levels of contamination found. As end use can be altered thus, this enshrines a concept of land management. As a general point, SGV's are not fixed absolute screening values but can be significantly varied by risk assessment on a site by site basis. This whole paragraph is therefore slightly misleading as it overplays the differences between the rad and non-rad regimes, which in practice do not really exist.
Mike Pearl (O)	UKAEA	Figure 3			Confusing and in places not quite right. The risks for rad are risks/year eg $10^{-6}/y$. 10^{-5} – assuming this means $10^{-5}/year$ then the corresponding dose figure is 0.3 mSv/y (not 3 mSv). "Tolerability of risk" – the risk regime is $10^{-4}/y$ to $10^{-9}/y$. For non-rad – is the table trying to say that there is no equivalent risk per year, or trying to say "unacceptable risk" is between 10^{-5} and 10^{-6} . Non-rad risks are usually quoted as lifetime risks. Soil Guideline Values – these shouldn't be quoted in this context. SGVs are generic screening values based on conservative assumptions about sites and habits. Being above an SGV means do a site specific risk assessment. Although may be not intentional, the table is suggesting that an SGV is a value somewhere between 10^{-5} and 10^{-6} risk for a particular site..... which it may not be.
Pete Booth (O)	(Nexia Solutions)		Fig 3	Page 30	It is misleading to say that only a further assessment of risk is require in the non-rad column. If this assessment shows risk, then further action is required. As this is phrased, it suggests you can do a further risk assessment then ignore the problem
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	6.3	Fig 3	30	This figure needs improvement to clarify what I think it is trying to show, namely that there is (in principle) no 'grey area' of 'tolerable risks' for non-radioactive contamination. The placement of the entry on 'contaminant intake limits, SGVs etc' needs to be presented in a different way, and also take account of the fact that risk to groundwater is often the criterion for what is acceptable (bearing in mind that Section 6 is about protection of people and the environment).
Pete Booth (O)	(Nexia Solutions)		Fig 3	Page 30	It is not clear where this figure has come from or what value it currently adds, ie is it purely the authors view to provide a comparison between the rad and non rad regimes? Either way I believe that the risk standard for 3mSv should be 10^{-4} not 10^{-5}
Pete Booth (O)	(Nexia Solutions)	6.3	Para 1	Page 30	Assessment of remediation options against end use in non-rad assessment uses ALARA and ALARP principles but under a different name (ie BPM and BPEO). Again this is overstating the differences between the two which don't really exist.
Mike Pearl (O)	UKAEA				This section fails to clarify a difficult situation caused by poor legislation. 'Option 1' favoured . There is no real difference in principle between radioactive and chemical contamination,

					and it is unhelpful to interpret the law as if there is.
Pete Booth (O)	(Nexia Solutions)	6.3			Option 1 should be followed producing a single integrated strategy combining CLR 11 with SAFEGROUNDS. CLR 11 is certainly flexible enough to do this without compromising it and ensures best practice is followed (as long as SAFEGROUNDS is also as flexible). Organisations such as AWE and DE do this on a regular basis and it should not be insurmountable.
SECTION 7 – STAKEHOLDER INVOLVEMENT					
Mike Pearl (O)	UKAEA	7.1	2	32	Within the site management team, both planners and implementers are stakeholders. There is little point in agreeing a strategy that cannot be implemented.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	7.2	3 rd para	34	In 2 nd sentence, why will it be 'generally necessary to involve a wider range of stakeholders than ... the SSG'? I think it would be more accurate to say 'However, it may be appropriate to involve a wider range of stakeholders than ... the SSG'.
Mike Pearl (O)	UKAEA		4	32	Text here is repeated in the last paragraph of the section on p33.
Mike Pearl (O)	UKAEA	7.2	1	33	The message that the concept of integration of contam land management activities with other activities on the site needs to be emphasised throughout the document.
Marion Hill (I)	Independent				<ul style="list-style-type: none"> If the suggestion for two volumes is adopted, Sections 7.2 to 7.4 should be moved to the second volume and redrafted accordingly. Whatever is done, the guidance on stakeholder involvement for nuclear-licensed sites should make the point more clearly that contaminated land is only one of the topics on which stakeholders should be / are being consulted. For NDA sites it needs to be recognised that end states have been agreed with stakeholders (or will be by the time that LMGv2 is published), and that further involvement is about how to achieve the agreed end states.
SECTION 8 – RECORD-KEEPING					
Marion Hill (I)	Independent				<ul style="list-style-type: none"> The subsection title is unnecessary. Please delete.
Mike Pearl (O)	UKAEA	8.1			The guidance should give some purpose to record keeping, otherwise records merely become an accumulation of data serving little purpose as information. The purpose of the records is primarily to document the condition of the land, particularly those features that might give rise to risk for future uses. The record of condition is given more credibility by a history indicating how the condition was achieved.
Mike Pearl (O)	UKAEA	8.1	5	37	<p>"There is an..."</p> <p>Mention of the National Nuclear Archive – as quoted from SAFEGROUNDS doc "The NDA is also looking at establishing a National Nuclear Archive (NNA) to produce consistency across all the different data and information centres. This will hopefully achieve Public Records Place of Deposit status where data of historical and local interest can be managed effectively and made available to as wide an audience as possible. However SLCs are entirely responsible for the management of records on their sites and should not anticipate a transfer of operational records to this entity until such time as those records are suitable for inclusion in such a facility."</p>
SECTION 9 – ORGANISATIONAL CULTURES AND MANAGEMENT SYSTEMS					
Marion Hill (I)	Independent				<ul style="list-style-type: none"> Although it was agreed that this section be included it does not add a lot. It might be better to make the points elsewhere, eg safety, environmental protection and security cultures, and QMS, could be covered in Section 5 on the regulatory regimes, stakeholder involvement culture would be best in Section 7.

Mike Pearl (O)	UKAEA				There should be a reference somewhere in this section to the need for a safety case, since this is a requirement in the SAPs for contaminated land on a nuclear licensed site.
SECTION 10 – PLANNING AND SHORT-TERM ACTIONS					
Mike Pearl (O)	UKAEA				Needs to refer to the flow diagrams.
Mike Pearl (O)	UKAEA	10.			Title – “Planning and Short Term Actions” This is confusing. Change this to what’s in the flow diagram – ie “Formulate Plans and Outline Strategies” Surely all that’s expected at this stage is to write something in the strategy that says when found immediate actions will be implemented.
Marion Hill (I)	Independent				<u>Sections 10-13</u> <ul style="list-style-type: none"> If the suggestion for two volumes is adopted, much of the material in these sections should be moved to the second volume and redrafted accordingly. It will also be necessary to add new guidance for operational nuclear sites, where the focus is on control and monitoring, not establishing long-term management options. Either in LMGv2 or in the revised site characterisation document, something needs to be said about determining whether land on a nuclear site is ‘radioactively contaminated land’ in the SAPs sense. This involves determining whether risks in any future use of the land would be above 10⁻⁶. Such a determination is key to how the land is to be managed (see regulatory framework paper) and is likely to be highly contentious. The current SAFEGROUNDS guidance on risk assessment does not deal with this topic at all.
Mike Pearl (O)	UKAEA			40	For the implementers of the SAFEGROUNDS Process. This Part of the document will be that Introductory paragraph needed which refers to the flow diagrams.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10	General	40-43	There are really three fairly distinct activities dealt with here, which don’t really benefit from being grouped together. The first (called ‘planning’) is really about ‘setting up arrangements’. The second is about designing and implementing programmes of site characterisation. The third is about choosing, designing and implementing any necessary immediate/short-term control and monitoring (over and above general controls already in place).
Mike Pearl (O)	UKAEA	10.1.1	2	40	“Pre-existing objectives for managing contaminated land...” Surely this should be pre-existing objectives for the use and future use of the site – so that a contam land strategy integrates with these uses.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10.1.2	Final para	41	The HSE/NII is the regulator for EIAD regulations, not the planning authority.
Mike Pearl (O)	UKAEA	10.1.2			This sub-section is in the wrong place. Surely it should be mentioned when the flow diagrams are introduced – because the HSE SAPs for conland is the HSE Process for managing rad conland on a lic site. It would be useful to show how the SAFEGROUNDS process maps to HSE SAPS – such that following SAFEGROUNDS means that a lic site at least complies with HSE requirements (If not so then the SAFEGROUNDS process needs to be adjusted !)

Mike Pearl (O)	UKAEA	10.2			Site Characterisation. Needs to say that the initial stages of site characterisation is a review of site usage, history, incidents, geology, hydrogeology etc and from this an initial conceptual model (an initial understanding of where contams may occur, the type and the potential for migration and impact). This forms, together with walk over reconnaissance forms the basis for further survey-based investigation (surface and intrusive) and for monitoring. As survey data is collected the conceptual model is continually refined, ie the behaviour of the contamination is understood more. This then enables planning for the long term remediation And may refine some of the short term measures. This may be true say for contam under buildings where the short term measure is to monitor, the medium term to control during decommissioning and the long term possibly to contain using caps or barriers.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10.2	2 nd para	41	The interpretation of this depends on what is meant by 'stakeholders'. It is not common practice to consult widely on the design of site characterisation. Is this being deemed to be 'poor practice'? External input from regulators or other stakeholders may well be helpful, but to say that this 'should' (always?) be sought may be putting it too strongly.
Mike Pearl (O)	UKAEA	10.2	3	41	This needs to include non-radioactive contaminants as well as radioactive ones. For those parts of the site where remedial work cannot be executed immediately, a surveillance regime should be put in place.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10.2	3 rd para (after bullets)	41	This suggestion on background radioactivity may be appropriate for (say) a de-licensing application (in which case the HSE/NII rather than environment agency should be the main point of reference). However, otherwise, I am not aware of any general need for prior agreement of background measurement plans with a regulator, especially for sites where the radioactive contaminants of concern are all artificial.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10.2	2 nd -last para	41	Why does this suggestion relate specifically to 'very complex sites'? The reference to 'Figure 3' is spurious.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10.3	Heading	41	See general comment about what Section 10 and its sub-sections are about.
Mike Pearl (O)	UKAEA	10.3	Title		"Selecting Short Term" This refers to KP 4 – immediate action not optioneering (KP3) – see Stage 5 of the flow diagram for complex sites). It means don't wait until you've been through a process of loads of characterisation before deciding the best option for the long term solution, ie as early as possible, if contam is suspected from a desk review, do something now to control it– even if its to just restrict access to the contaminated area. Once under control, or once impacts are understood (by monitoring and further characterisation) then a long term solution can be developed. (For a small problem a site may choose to remove the contam immediately).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	10.3	1 st para	41	Confusion of 'immediate' and 'intermediate'?
Mike Pearl (O)	UKAEA	10.3	2	42	'Pollutant linkage' is an undefined term.
		10.3	6	42	"On some areas it may be necessary to assess and compare short-term options" This is contradictory to the principle of KP4. Immediate means don't dither ! ie don't waste time optioneering, get something in place. What it might be possible to do is to review the short term actions and modify them if long term solutions are still being assessed and planned.

SECTION 11 – ESTABLISHING LONG-TERM MANAGEMENT STRATEGIES AND OPTIONS					
Mike Pearl (O)	UKAEA	11.1.1	1	43	<p>Number 1 should define the objectives of the management options for the whole site (which may mean dividing the site up into areas, looking at the contaminants in those areas, identifying the contaminated media [soil, groundwater, gas] and setting "clean-up" targets for those media in those areas). From this, prioritise actions to meet the land condition criteria for the site, and then look at options and sequences of options to deal with the problems).</p> <p>The long term strategy means the strategy for the "remediation" of the whole. Thus it might mean integrating short, medium and long term solutions. (Short term solution in this context does not mean the "immediate action" to control at stage 3 of the generic and complex flow diagrams.</p>
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	11	General	43	As set out in my General comments, below, the linkage to and consistency with the SAFEGROUNDS options comparison guidance is not strong enough.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	11.1.2	1 st para	43	The SAPs set out HSE/NII's expectations, not requirements.
Pete Booth (O)	(Nexia Solutions)	11.1	11.1.2	Page 43	The requirements of the Water Framework Directive and Groundwater Daughter Directive are not discussed in the document. The implementation of legislation supporting these Directives is ongoing, however, protection of Controlled Waters from contamination on nuclear licensed and defence sites should be discussed. Also of relevance is the difference in interpretation between the England and Wales definitions of contaminated land (which states that non-radioactive contaminated land is defined on the basis of "...significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused") and the SEPA definition of pollution (" <i>the direct or indirect introduction of a substance or heat into groundwater which may give rise to harm...</i> ") which does not mention the significance of any harm. The need for significance tests for radioactive contaminants in groundwater is being debated. The environment agencies are responsible for regulation of groundwater pollution (add to p43, section 11.1.2).
Mike Pearl (O)	UKAEA	11.1.2	1	43	"The main regulatory.." Also RSA
Mike Pearl (O)	UKAEA	11.1.3	1		Not necessarily short timescale – not if the MOD is retaining long term ownership of the land.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	11.1.3	1 st para	43	The Planning regime may also be used to regulate radioactive contamination.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	11.2	Bullet list	44	This list should include something like "the need to excavate or otherwise disturb the ground – e.g. for construction of new facilities or decommissioning of old ones."
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	11.2	Final para	44	I found this very unclear – unintended double negative?
Mike Pearl (O)	UKAEA	11.2	1	44	<p>Explain why it is necessary to prioritise (ie financial constraints - do not have the funding to deal with all the problems at the same time).</p> <p>Source-pathway-receptor not explained. S-P-R is a statutory tool for establishing a pollutant linkage, not a way of prioritising. Prioritisation needs some assessment of probability and consequence.</p> <p>Also prioritisation needs to include consideration of other activities and conland drivers on the site. eg contamination under a drain which is not migrating may be dealt with sooner rather than later if the drain needs to be excavated as part of an infrastructure change.</p>

SECTION 12 – IMPLEMENTATION AND VALIDATION					
Pete Booth (O)	(Nexia Solutions)	12.1	12.1.4	Page 46	I think it would be worthwhile having more detail within this section. This is a subject that really trips people up.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	12.1.3	Final para	46	'or' should probably read 'for'
Mike Pearl (O)	UKAEA	12.1.3	2	46	Information on calibration for rads but also needs to include the need to calibrate instruments for detecting non-rads. Also thought needs to be given in monitoring to frequency and determinands. Shipment and analysis of radioactive samples for chemical determinands can be difficult to arrange.
Mike Pearl (O)	UKAEA	12.1.4	1		Include waste management for chemically hazardous wastes.
Mike Pearl (O)	UKAEA	12.1.5	1		Contingency measures – such as what? Eg funding arrangements etc
Mike Pearl (O)	UKAEA	12.1.6	1		Records should include decisions.
Mike Pearl (O)	UKAEA	12.1.7	1		“Validating original objectives” but this guidance did not indicate that objectives should have been set (see comment on 11.1.1.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	12.3	1 st para	48	I suggest this should read: “There will be cases ... achieves the final end-state for the area in question.”
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	12.3	2 nd para	48	Use of past tense ‘when there has been’ makes this sentence difficult to understand.
Mike Pearl (O)	UKAEA	12.3	2		The role of predictive modelling. What if the end state doesn't allow unrestricted use?the role of controls during long term stewardship.
SECTION 13 – CHECKLISTS					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Annex 1	All	59-66	I think it is unrealistic to expect current practitioners and their successors to maintain this check-list through to the final end-state (which may be many decades in the future). The blank columns and tick boxes are unlikely to be used in this form. Annex 1 would be better presented as a ‘prompt list’ rather than a ‘pro-forma’.
Mike Pearl (O)	UKAEA	General			The check lists only partially follows the SAFEGROUNDS process (as defined in the flow diagrams)
Mike Pearl (O)	UKAEA	Site Characterisation (in Formulate plans)		60	This is in the wrong place. It should be in the first part of “3. Site Characterisation” – see flow diagram on p19 where the desk review to be in “Initial site characterisation”. In “Formulate plans” site characterisation surely just refers to a commitment to carry out characterisation to appropriate standards eg SAFEGROUNDS, BS etc.
Mike Pearl	UKAEA	End Points		61	Does this mean “End Point” or “End State”. Validation plan – far too early to do this at the stage of “Formulate plans”, but should be planned for as soon as information about the contamination is established.
Mike Pearl (O)	UKAEA	4. Undertake Assessment		63	Where is this on the flow diagram
Mike Pearl (O)	UKAEA	5 Establish short, medium and long term management strategy		64	These bullet points are not applicable to “short term management strategy”. All the short term strategy should say is “once contam is suspected, immediate measures will be put in place to do something to control or understand it – eg access restrictions, groundwater monitoring”. After that then plan the more permanent solution (the long term management option)– taking into account all other areas of contam, options, stakeholder views etc. The “long term solution” might actually be a combination of measures in the short term, measures in the medium term and measures in the long term..

END PAGES (references, glossary)					
Pete Booth (O)	(Nexia Solutions)	References	EA 2000a	Page 49	This document came out in April 2002, not 2000.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	14	References	49-51	See General comment on need to give 'SAFEGROUNDS/CIRIA' as originator of 'approved' SAFEGROUNDS guidance, rather than author lists.
Mike Pearl (O)	UKAEA	14. Legislation refs		51	Regulations are statutory instruments. Please insert full details of the legislation that amends NII 1965. Note that Water Resources Act 1991 is England and Wales only. I suspect that it is now amended. For Scotland, add Water Environment and Water Services (Scotland) Act 2003 and Water Environment (Controlled Activities) (Scotland) Regulations 2005 SSI 348.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	52-56	Where terms are given specific meanings in LMGv2 or SAFEGROUNDS in general, this should be made explicit – perhaps using a suitable symbol.
Mike Pearl (O)	UKAEA	15		52	ALARA, ALARP not defined
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	52-56	Some of these definitions need to be replicated in the options comparison guidance (once made fully consistent).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	52	As the options comparison guidance makes clear, a 'constraint' is something quite different from a 'screening criterion'.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	53	A definition of 'Future' is not needed, but definitions of what is meant by terms like 'short-term', 'long-term', etc might be helpful.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	53	A definition of 'Land Quality' should be added (see General comments below).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	54	The definition of optimisation only explicitly mentions non-radioactive contamination, but the concept is very much applied to radioactivity. This definition needs some more work on it.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15	Glossary	56	The definition of 'Stakeholder' needs attention. See General comments below.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15.2	Acronyms	57	No need to include BNFL?
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15.2	Acronyms	58	Add LQF (Land Quality File).
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15.2	Acronyms	58	The text uses 'Part 2A', not 'Part IIA'
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	15.2	Acronyms	57	DTI no longer exists – now (D)BERR
APPENDICES					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)				See 'Section 13'
GENERAL COMMENTS					
1) Is the document presented in a logical fashion?					
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Generally, yes			

A N other		Overall logical layout, but would be improved by being more succinct and following the CLR 11 format which makes grater use of flow diagrams (answer to question 1 to 3)
Mike Pearl (O)	UKAEA	The answer to the first question is no.
2) What areas could be improved?		
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	No specific suggestions, other than identified in comments presented above and below.
Mike Pearl (O)	UKAEA	<p>Parts 2 and 3 are disjointed and it's difficult to see the wood for the trees. Whilst we can see that the document has attempted to follow the outline contents list which was consulted on before the body text was written, it just doesn't flow in the way it was anticipated it would.</p> <p>Comparing LMG1 to LMG2 part of the problem with LMG2 is the way the Key Principles are handled between Part 1 Section 2 and Part 2 Sections 6, 7, 8, 11 and 10. Part 2 is trying to mix the process with amplification of key principles – it doesn't work and is confusing. The reader is left frustrated that they can't follow a process because it's been high-jacked by a load of text amplifying the meaning of the key principle.</p> <p>In LMG1 the Key Principles are first stated in one chapter, amplified in the following chapter, and then the following chapter is a description of the process. This would be a far easier approach to use for LMG2 – recognising that's it's not the Key Principles that have needed an overhaul, but rather the process.</p> <p>Checks of integration to Cit Guide and Options Comparisons docs needed as there are some inconsistencies between the three (all of which were written at the same time).</p>
3) What areas are good examples?		
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	None identified.
4) Does the guidance cover the subject comprehensively?		
A N other		No. The way in which radioactive land contamination on non nuclear defence sites is dealt with is incomplete and flawed particularly in relation to SGVs and RGVs.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Generally, yes, given that there are supporting guidance documents on more specialised topics.
5) Does it provide fundamental principles of good practice?		
A N other		<p>Yes in terms of stakeholder involvement, but no in terms of the application of the Safegrounds Key Principles and guidance and also the application of CLR 11 and RCLEA. Equally the refusal of the authors to move with the times and embrace changes such as the use of 'land contamination' by organisations such as the Environment Agency to distinguish between statutory and non statutory contaminated land means the guidance is behind the curve and is not evolving and staying at the forefront.</p> <p>Whilst the Safegrounds guidance was developed for radioactive land contamination it provides a flexible framework for the management of both rad and non rad land contamination that accommodates guidance and procedures such as CLR 11 and enables them to be applied. In deed it has been used in this way on defence sites to provide an integrated approach and provides a means of incorporating stakeholder engagement into the process. Something that is recognised by CLR 11, but for which there is no specific mechanism.</p>
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Generally, yes.
6) Are there specific examples that you can think of that demonstrate the application of these principles?		
Hugh	Magnox Electric Ltd	Not sure what the question means – examples within the guidance or examples of implementation of the guidance?

Richards (O)	(North Sites)	
7) Are there areas that you feel have been skimmed over too lightly? What additional information would you like to see added?		
A N other		<p>The approach needs a fundamental overhaul. Whilst nuclear sites and non nuclear defence sites fall under different regulatory regimes (Part IIa and planning principally for the latter) surely there needs to be common integrated approach that incorporates/is compatible with current best practice, namely CLR 11? Also the role of RCLEA and RGVs needs to be better explained especially in 6.2. Where does the NRPB 1998 approach fit in? Does RCLEA have a role on nuclear licensed sites, legislative regimes aside?</p> <p>For Section 1.1 to be comparable with other publications reference should be made to historical activities at para 2 and fact radium was used predominantly for luminising between 1930s and late 1950s after which promethium 147 and tritium were used. Equally this section could do with being more succinct</p> <p>At Section 6.3 it is worth noting that CLR 11 applies to rad land contamination on defence sites and the text as it stands is flawed.</p> <p>You are in danger of causing an awkward split between nuclear and defence sites which could result in Defence Estates withdrawing from Safegrounds.</p> <p>In Section 11.1.3 there appears to be no mention of the Planning Regime.</p>
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	<ul style="list-style-type: none"> LMGv2 needs better integration with the SAFEGROUNDS options comparison guidance, in particular consistent definition and use of terms such as context, assumptions, constraints, etc. and a consistent view of what are strategic, technical and implementation options (if the options comparison guidance is right in trying to distinguish these three levels). Also, the whole process of sub-dividing a site into areas or zones is given insufficient attention – see further General comments below. Finally, the question of what is ‘protection of the environment’ is given little or no attention.
8) Are the illustrations, tables etc. appropriate?		
A N other		They are Ok as far as they go though the role of the Local Authority under Part IIA In Table 2 is misleading. They are the principle regulators.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Yes, but see next question.
9) Would more diagrams / schematics be helpful in explaining the process?		
A N other		Greater use of flow diagrams akin to CLR 11 would have improved the guide (answer to question 9-10)
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Yes. The document (and the citizen's guide) are very ‘dry’ and would benefit from more visual representation of concepts and information – for example to illustrate the process of sub-dividing a site into areas or zones.
10) What improvements could be made to the figures that are included?		
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	The only proper figures are the existing flow diagrams, which have been through extensive consultation but still could be improved – e.g. by having letters for stages in one diagram and numbers for the other. Otherwise the whole process of mapping stages from one diagram to the other is quite difficult to follow and ponderous in the text.
11) Is the target audience defined and is the content clearly targeted at the target audience? Is the writing style appropriate?		
A N other		Overall, no. More robust peer review is required.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	I don't think the target audience is clearly defined, and therefore the other questions are difficult to answer. To say in Section 1.2 that the guidance ‘has been developed primarily to help those responsible for the management of contaminated land’ does not give the sense as to whether it is aiming at a technical or non-technical audience (or both). That said, the writing style is generally clear (to me).
12) Is the split between the information in the main body and the appendices appropriate?		
A N other		Comment: Yes, as far as it goes.

Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Yes.
Marion Hill (C)	Independent	<ul style="list-style-type: none"> Now that the first full draft of LMGv2 has been produced it is apparent that neither the content nor the form of the document is such as to make it useful on a day-to-day basis to its main audience, ie site owners/operators and their contractors and consultants. The primary omission as far as content is concerned is the lack of any practical guidance on satisfying regulatory requirements. This is particularly the case for nuclear sites and especially for those that are being decommissioned and wholly or partially delicensed. What is needed for such sites is a 'road map' through the overlapping and sometimes competing requirements of HSE, the environment agencies and local authorities. The main difficulty with the form of the document is the interspersing of site-type specific guidance with general guidance. It would be better to separate the two so that users can read the general guidance from time to time but use the specific guidance for their type of site more frequently. I would suggest that LMGv2 be split into two 'volumes', which could be produced in one document or as two documents. The contents of these would be as follows. Volume 1 would be 'General Guidance'. It would be structured as in the current draft. The text would be a shortened form of the current draft with the site-type specific guidance and checklist removed. Volume 2 would be 'Guidance for Various Types of Site'. This would have sections for (1) nuclear sites being decommissioned, (2) operational nuclear sites, (3) non-nuclear defence sites, (4) industrial, medical and research sites, and (5) site contaminated by accidents and emergencies. The sections for nuclear and defence sites (Sections 1-3) would be based around flow diagrams that show site owners/operators how to satisfy regulatory requirements while meeting the expectations of other stakeholders. The accompanying text need not be long. It should refer directly to regulatory guidance (eg the SAPs, CLR11) and refer back to the general guidance. A checklist could be included in each section. The sections for other sites (4 and 5) could be much shorter, perhaps without diagrams or checklists.
SPECIFIC COMMENTS		
1) Of the two alternative texts provided in section 6.3, which would you like to see form the basis of the finalised text?		
A N other		The approach must be an integrated one that follows/is compatible with CLR 11 and this can and is being facilitated on defence sites using the Safegrounds key principles and guidance to provide the necessary flexible framework (answer question 1-2)
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	I think that the alternatives focus on a single area of difference of approach between CLR11 and radiological protection regulation/guidance, and risk giving the impression that CLR11 is solely concerned with defining 'levels of protection', especially with regard to human health. Option 1 talks about a 'single integrated strategy' while Option 2 talks about 'two separate approaches'. It should be possible to have a 'single integrated strategy' (for a whole site) <u>and</u> use 'separate approaches' to setting remediation objectives for radioactive and non-radioactive contamination (within the context of an integrated strategy). More attention maybe should have been given to the word 'strategy' in this context.
2) What amendments/ additions/ clarifications would you like to see addressed?		
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	<ul style="list-style-type: none"> This will no doubt be a matter for discussion at the workshop on 6 November, to which I intend to contribute.
3) Is there sufficient guidance for both short-term and long-term planning?		
A N other		As it stands the guidance is flawed and incomplete.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	Yes.
4) Does the checklist in Annex 1 provide an adequate level of detail for practitioners to undertake the necessary planning?		
A N other		See above
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	It appears to do so, but I have made comments on the format.

5) Do the following areas require additional explanation and detail: (i) Planning options (ii) Risk assessment (iii) Stakeholder Involvement? If yes, what additional information would you like to see covered?		
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	<ul style="list-style-type: none"> • Planning options: Not clear what the question means. 'Planning' and 'Establishing/comparing options' are presented as separate activities in the guidance. • Risk assessment: I have suggested in another consultation that the SAFEGROUNDS site characterisation guidance should offer more guidance on preliminary qualitative risk assessments done in the context of preliminary desk-based characterisation studies, which typically set the basis of prioritisation of more detailed characterisation. If this is not picked up in the characterisation guidance, then perhaps it should be here, but it might unbalance the LMGv2 report, which is largely free of detailed technical guidance to practitioners. • Stakeholder Involvement: Sufficient guidance is given.
A N other		No
6) Other comments		
Paul Dorfman (I)	University of Warwick	A good and worthwhile document.
Hugh Richards (O)	Magnox Electric Ltd (North Sites)	<p>Please note: The following General comments are in some cases more important than any of the preceding ones</p> <p>Given the high profile given to 'stakeholders' throughout the guidance, a tighter and more consistently applied definition or set of definitions is needed. It is apparent that where the term is used within the guidance, it really means what are called 'external stakeholders' in the definition on p56. Also, as primary regulators have specific duties and powers (requiring compliance rather than implementation of good stakeholder involvement/engagement), it is evident that much of the guidance on stakeholder involvement/engagement is actually talking about external stakeholders who are not primary regulators. An appropriate understanding of what is meant by 'stakeholders' is vital to the interpretation of the Key Principles and the guidance as a whole.</p> <p>There needs to be a more high profile acknowledgement that the process of managing contaminated land on many sites has been under way for many years. For nuclear sites in particular, where contaminated land management has typically been under way since before LMGv1 was issued, it is unrealistic to convey the notion that there is a 'blank sheet of paper' and a point in the (near) future at which the owner/operator starts the 'SAFEGROUNDS' process (with stakeholders involved from the earliest stages of planning etc).</p> <p>In Section 1, for the reader not familiar with the background to SAFEGROUNDS, it would be helpful to provide an explanation at the outset as to why guidance specific to nuclear and defence sites is required. My perception is that the main reasons are:</p> <ul style="list-style-type: none"> • Particular public concerns and risk perceptions associated with nuclear sites and radioactive contamination. • Complex regulatory regimes where radioactivity is involved (over and above Planning and Part 2A for non-radioactive contamination). • Long timescales involved in nuclear site decommissioning (compared to brownfield redevelopment etc). <p>(Perhaps) the fact that most of the liability at issue is held by Government.</p> <p>Section 1 (1.3?) needs a summary of the key reasons why LMGv1 is being updated. A table or appendix setting out the key differences between LMGv2 and LMGv1 would be very helpful.</p> <p>As mentioned above, a consistent view needs to be reached as to whether the 3-fold hierarchy of options comparisons (strategic, technical and implementation) put forward in the SAFEGROUNDS options comparison guidance is to be adopted throughout the guidance suite. I agree with the strategic/technical distinction but have to be persuaded that the 'implementation' level is worth distinguishing from technical. How this is resolved MUST be</p>

		<p>reflected in LMGv2 (including in Section 1.4, but also in the flow diagrams and elsewhere), or there will be a disconnect between the two guidance documents. See also my comments on the Options Comparison guidance document.</p> <p>The use of the term 'strategy' needs to be consistent with the SAFEGROUNDS options comparison guidance. Section 1.5.3 gives the impression that 'options' are assessed at the area-specific level, whereas the SAFEGROUNDS options comparison guidance says 'strategic' options can be assessed at a site-wide level. Section 1.5.3 then confuses matters by saying that a strategy (always?) applies at a site-wide level and can include different 'options' (presumably meaning preferred technical options) for different areas. My own perspective is that a strategy can be developed at any appropriate scale (e.g. "At Site X, the preferred strategic option for Zone Y is de-licensing followed by sale) and technical options can be developed accordingly. The options for the SAFEGROUNDS guidance seem to be either a tighter definition for this and other terms, or an acknowledgement that these words are often used rather loosely to mean different things. See also my comments on the Options Comparison guidance document.</p> <p>The term 'land quality' has now entered the SAFEGROUNDS lexicon (Records guidance) and needs to be defined, using the definition in the Records guidance and perhaps taking account of a definition used in my own organisation, as follows:</p> <p>The term 'land quality' encompasses all human influences on land which might lead to liability for the land owner. Based on and expanding existing NDA guidance (document EGG01), the term covers the following:</p> <ul style="list-style-type: none"> • Past inadvertent radioactive and/or non-radioactive contamination of land and/or associated groundwater (both known and suspected/potential); • Past non-consented deliberate disposals of solid waste to land (radioactive and/or non-radioactive); • Past non-consented incidental/dispersed burials of solid wastes within made ground (e.g. asbestos-containing waste materials); • Past consented disposals of radioactive and/or non-radioactive solid waste to land, which may not have reached their final end-states (e.g. due to requirement for new land-use or the threat of erosion); • Impacts on land quality arising from discharges of radionuclides (or other contaminants) to air and water environments; • Below-ground built structures that may require removal or other remedial work to reach the final end-state for the land; • Potential for unexploded ordnance (e.g. on land with former military use). <p>The term does not include the potentials for flooding or erosion in themselves or visual/aesthetic (landscape) attributes of the land. Consideration of flooding and erosion potential may well be relevant when considering how to manage land quality issues, including consideration of the potential for new pathways to be created (e.g. by erosion, exposure and/or dispersal of previously buried fixed contamination). Consideration of visual/aesthetic matters may be relevant to planning of land remediation/restoration, as may the physical safety of any people having uncontrolled access to the land.</p> <p>At the start of Sections 6, 7 and 8, it would be helpful for the boxes quoting the Key Principles to be explicit that that is what they are.</p> <p>I question whether references should be cited by authors' names, rather than originator organisations' names. This is particularly the case for other CIRIA/SAFEGROUNDS documents where authors' opinions are subordinate to PSG views.</p> <p>I question whether references should be cited by authors' names, rather than originator organisations' names. This is particularly the case for other CIRIA/SAFEGROUNDS documents where authors' opinions are subordinate to PSG views.</p>
Pete Booth (O)	(Nexia Solutions)	<p>The differences between the SAFEGROUNDS approach and CLR 11 appear to have been overstated. CLR 11 should be considered best practice and is not so inflexible that the two regimes cannot be sensibly combined to form a coherent way forward conforming with best practice. The justifications why CLR 11 cannot be followed appear to be misleading (see above) and as such, there is an element of reinventing the wheel taking place creating a whole new framework where pragmatic adjustments to CLR 11 may be more in order.</p> <p>The regulatory regime for defining and dealing with contamination in Scotland has a number of key differences compared with England and Wales. These have not been fully explored or referenced in the document and may potentially provide erroneous advice to guide users in Scotland.</p>

		<p>The definitions of contaminated land used in LMGv2 differ from statutory definitions and that in the NII SAPs. A level of consistency would be desirable, as would a link to the principles of risk assessment.</p> <p>We don't believe there is enough detail provided in the text for each box in the flow diagram.</p> <p>In updating LMG2, further reference needs to be made to work in progress in the Defra "Way Forward" for the assessment of impacts to human health associated with non-radioactive soil contamination, including clarification of where intake levels of threshold and non-threshold (e.g. carcinogenic) contaminants compare against the regions of the Tolerability of Risk framework. The use of Soil Guideline Values as anything more than screening values is not advocated (guidance should instead refer to derivation of generic and site-specific assessment criteria (GACs and SSACs)).</p> <p>The statistical analysis of land contamination data forms best practice for an assessment in line with the requirements of CLR11 - guidance is given in CLR7 and Defra currently has a guidance note on the statistical analysis of land contamination data in preparation. This should be referred to.</p> <p>There is no real description for the detailed flowsheet, commensurate with the potential complexity of the issue in hand.</p> <p>There are I believe some factual errors in the report which have also been missed by the checker.</p>
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Please note the following:

- (I) - Individual**
- (O)- Organisation**
- (C)- Constituency**