

Comments on the 2nd draft of the guidance

Consultation: Phases 2 (November 2004)

Content specific comments

Chapter	Reference	Comment
1	Section 1.2, p2, para 1	add "Also LC35 demands decommissioning plans for all licensed sites and Cm2919 (requirement for QQR) includes those for minor sites not just BNFL/UKAEA/BE e.g. research, Amersham etc"
1	Section 1.4	defines waste types but not "waste". It would be useful to define waste upfront and not to wait until the reader reaches the Regulatory section.
1	Section 1.4	3 LLW - Amend sentence 2 to read "waste can be chemically..."
1	Section 1.2	Section 1.2 is written in the past tense, which is odd. "This project had" suggests something has since changed. What is the project now? Suggest the present tense.
1	General	Unless one aim is to change outcomes, the report is a waste of effort.
1	General	The three declared aims are inventory, reuse/recycling potential, and sustainability – the Dounreay case study (where I have a small contractual recycling interest) is reasonably enough still to follow.
1	General	The comments to Ch 2 below, illustrate the current radioactive waste policy 'turmoil' that is the context to this guidance, and might be better added to this chapter.
1	Section 1.1, para 2, line 6	Need to make it clear that once declared as radioactive waste, it must always be designated so, but it can be disposed of in ways similar to that of conventional waste
1	Section 1.1, para 4, line 3	not comfortable with the term radioactively clean and think it needs defined upfront
1	Section 1.4	There is no waste categorisation for radiologically clean
1	Section 1.4, bullet 5	"Radioactively clean. This is waste which is similar in terms of material and composition to LLW but which has either never been contaminated or by analysis has been shown to be not contaminated (above the relevant EO limit??) or is waste complying with Schedule 1 of RSA'93". Does this mean waste that only contains naturally occurring radioelements at concentrations below the Schedule 1 limits in RSA 93 (see Section 2.1)?
1	Section 1.4.1	This proposal has not been put to the regulators for approval, but has been recommended for further consideration by the Radioactive Waste Management Advisory Committee (RWMAC, 2003).
1	Section 1.3, p2, para 3	The report is a general report examining sustainable practices in nuclear site decommissioning at licensed sites. However, in this paragraph it states that the report is concerned with specific sites. This we believe is unnecessary and the reference to the licensed nuclear dockyards at Devonport and Rosyth should be deleted.
1	Section 1.4, p3	some of these figures are given in GBq/tonne while elsewhere figures are given in Bq/g. It is suggested that for one of these quantities the conversion should be given in parenthesis to aid the less scientific reader.
1 & 3	Section 1.4.1, p4, point 3 and Chapt 3, p11, para 6	it is noted that there is no figure given for alpha material. Is this an omission or is it the intention to exclude alpha material?
1	Section 1.2, p3	I think that the issues associated with non rad waste disposal capacity in the UK and the reputational issues associated with waste derived from nuclear sites needs to be emphasised at the beginning. The biggest challenge facing the decommissioning of nuclear facilities is not sustainability, it is finding a cost effective and viable disposal route. Issues that need to be mentioned are lack of landfill space, lack of suitable waste management facilities and the high cost of landfill.
1	Section 1.2, p3	I think it is important that similarities to non nuclear construction and demolition projects need to be emphasised so as to ensure that the industry fully utilises good practice from the non rad waste industry. For clean C and D wastes these

		similarities are significant.
1	Section 1.2, p3	I think the report should clearly illustrate the scale and business cost of C and D wastes across the UK so ensure that the subject is dealt with an appropriate priority.
1	Section 1.2, p3	I agree sustainability is very important but we need to have the a waste disposal framework in place in the first place so as to improve it and make it more sustainable, for many aspects of NPP wastes there is not even an established disposal route
1	1.1, para 1, p1:	some indication that final remediation could be over 100 years away, may give a clearer picture
1	1.1, para 2, line 4, p1:	"...in accordance WITH the requirements..."
1	1.1, para 3, line 4, p1:	'minimising' instead of 'minimizing', unless you're American
1	1.1, para 3, line 5, p1:	"...enshrined WITHIN the..."
1	1.2, p1:	"...enshrined WITHIN the..."
1	1.2, p1:	the way that this is written in the past tense, makes it seem that none of these objectives are valid any more – so what are the objectives now?
1	1.3, fig 1.1, p2:	will you just map the 27 sites alluded to or will you include ALL sites that have facilities/stores? at some point research sites (e.g. Rutherford Appleton Lab at Imperial College, Ascot), industry sites (e.g. ICI, Billingham), MOD sites (e.g. Depleted Uranium stores, Donnington), etc., will decommission or de-store with potential to deconstruct or demolish buildings
1	1.3, fig 1.1, p2:	a list of sites maybe with addresses, in an annex, could also be useful
1	1.3, para 5, line 4, p2:	remove first 'overall' to read "...consolidate the LCBLs..."
1	1.3, para 5, line 9, p2:	add leading inverted comma to give 'Integrated Waste Strategy'
1	1.3, para 6, line 5, p2:	"...in consultation with other stakeholders where appropriate." - needs to be strengthened to suggest full involvement of stakeholders through the NDA stakeholder groups
1	1.3, para 7, line 9, p3:	you seem to have jumped to 'operators' without explaining that NDA have the overview, but site licensees/M&O contractors will carry out day -to-day work
1	1.3, para 7, line 11, p3:	"...strategies and plans are subject to regular review..." – by whom? how will they change?
1	1.4, point 4, line 3, p3:	'3' needs to be superscript to give '0.1m ³ '
1	1.4, final para, p3:	"...the Drigg repository..." – this needs to be along the lines of 'the repository at Drigg' or 'the LLW facility at Drigg'
1	Section 1.4.1, p3	The arbitrary choice of an upper numerical limit for the 0.4 – 4 Bq/g category is not helpful. Two questions need to be considered: a) whether there is value in a new category, and b) what this category should be. At this stage a verbal description would have been preferred, e.g. LLW for nuclear industry reuse. Later in the document this is presented as though it is an agreed category.
1	p.2, Section 1.3	Clarify whether MoD sites are subject to NIA '65
1	p.2, Section 1.3	In the title for Figure 1.1.it would be useful to clarify that the map is referring to both NDA and non-NDA sites. It would be useful in the map to distinguish these sites from each other
1	p.2, Section 1.3	Nuclear Licensed sites are obliged to have a Decommissioning Plan under Licence Condition 35, as well as Cm 2919
1	p.2, Section 1.3	It would be useful to give an indication of the different timescales covered within LCBLs and NTWPs
1	p.2, Section 1.3	Please indicate whom it is that is developing a specification for IWS
1	p.2, Section 1.3	Please clarify who owns the existing plans and strategies
1	p. 3, Section 1.4	Please state where the definition of VLLW is derived from

1	Section 1.3, p2/3	Whilst the paper understandably concentrates on NDA sites it should not by default exclude nuclear operators outside the NDA umbrella.
1	Section 1.4, p3	It should be noted that the figures quoted for VLLW are those for general beta/gammas, normally excluding Sr-90. However, there are frequent VLLW authorisations for C-14 and H-3 and the figures are as a rule 10^* > than that for beta/gammas. Also, albeit far less infrequently there are VLLW authorisations for alphas and as a rule the figures are 10^* < than that for beta/gammas.
1	Section 1.4, p3	The issue of disposing of VLRM, if such a category was established, on site would not facilitate delicensing of sites (proposed criteria of 10^{-6} to demonstrate "no danger") which surely is the ultimate objective of the NDA? This practice would be a viable option to consider for "ongoing sites".
1	Section 1.3, last para	It should be made clear that the endpoints do not necessarily mean that the buildings are demolished
1	Section 1.4	RSA is in section 2.2 not 2.1. SoLA is mentioned here, but not PSRE. Perhaps 'waste conforming to exemption orders' should be added to the list to clarify the situation, after all 'exempt waste' is referred to later on.
1	Section 1.4	I am not sure that introducing VLRM here is helpful as it is not explicitly considered further in the document. Perhaps 1.4.1 (3) could be linked to it? Is there a reason for the choice of 4 Bq/g?
1	Section 1.1, p2	Delete text "contain no artificial radioactivity" as this has no relevance, nor does it add any clarity to the sentence.
1	Section 1.4, p3	Remove all categories of waste that are not referred to in the report, little to be gained by referring to categories of Waste that isn't used.
1	Section 1.4	Possibly the best part of the whole report is the explanation of the types of waste (1.4). 1.4.1 did not seem to address the issue of how the regulations/legislation deals with the conundrum between activity levels measured in Bq/g which takes no account of very large volumes of waste as in CDW where the activity levels might more realistically be reflected in GBq/t. This is not just a scaling up but includes the issue of dosage for the receptor which is not well covered in the report.
1	Section 1.2, p1	In point 3 the sustainability indicators sound like KPIs rather than criteria that can be assessed as part of a BPEO process.
1	Section 1.3, p2	NPPs – please state this in full – Nuclear Power Plants.
1	Section 1.4, p3	Point 3 refers to section 2.1 – should be 2.2.
1	Section 1.1	This and the subsequent text are nicely put and well balanced, but it may be helpful to underline to readers in para 2 that any consideration of reuse/recycling/disposal has to be in the context of the UK's (conventional) Waste Management Regime (e.g. Waste Management Licensing Regulations 1994 etc.) under EPA 90. I would suggest this minor emphasis for the simple reason that we have observed decommissioning sites having to go through a tight learning curve after an initial misapprehension that all such activities were already permitted either under Nuclear Site License 'arrangements' or under 'permitted development' provisions within planning consents. This may seem surprising but not if one considers the staff involved to have been solely involved in nuclear site operations beforehand where such 'arrangements' and provisions were indeed, mostly if not altogether in that particular context, sufficient to need.
1	Section 1.3	Minor - you should expand on 'NPP' in the first instance; also suggest that you use as an example Sizewell 'A' - the Sizewell 'B' station (our own as opposed to BNG Magnox's) being more recent and far, we trust, from decommissioning.
1	Section 1.4	This section and the subsections following make a clear presumption that all wastes are subject to a sole primary classification according to radioactive content, whilst the truth of the matter is that there are two overlapping regimes, one radiological and the other conventional. Presenting the matter as you have done may accidentally mislead readers coming from either domain. Both regimes are statutory requirements and both have relevance here. I would suggest that you restructure this section so as to introduce the classification arising under EPA 90. In practice the relevance of this need to hold both regimes in mind begins to come into place below the LLW threshold as it is here that practicable possibilities of in situ disposal or re-use begin to occur.

1	Section 1.4	Within the subsections it is repeatedly stated that a practice might be controlled or allowed under provisions or exemptions under the NIA - what is not said is that rules and exemptions under EPA 90 might be relevant. So if crushed concrete is to be used in road construction this may be possible through an exemption under EPA 90, or via a Waste Management License, or by being handed off to another party under Duty of Care. You do attain a better balance on these matters in Chapter 2.
2	General	Some of this could be put in an appendix.
2	Section 2.4, para 2, line 4	"terns" should read "terms"
2	Section 2.2.1, p8, last bullet	(... stakeholders) is this a direct quote? It's a problem, because its meaning is unclear and potentially impossible to deliver.
2	General	All that I would add is a reference to the DTI Sept 2004 policy statement 'THE DECOMMISSIONING OF THE UK NUCLEAR INDUSTRY'S FACILITIES' which states at paragraph 8: "Strategies should harness the general benefits of radioactive decay while the problems to which it may give rise in certain areas should be avoided. Careful consideration should be given to delaying operations to allow radioactive decay to occur. This should maximise the amounts of materials suitable for re-use or recycling, as opposed to being managed as low level waste (LLW)." It was acknowledged by NII (at PSG3) that while there might be some material that 'falls out' of RSA 93 control, the DTI statement implies that there is a lot. It is therefore a misleading statement that is now 'policy'. The danger is that pressure will be put on site managers and strategy developers to consider procrastination, when there is no benefit because there is in fact very little waste that will fall out of RSA control and thus become available for recycling, s
2	p5, bullet 3	"Excluded: An article or substance that is not radioactive under RSA'93 and not subject to any control under the Act because it does not contain levels of any of the specified radioelements above the limits in Schedule 1 of RSA'93 or any non-specified..... not quite – only non-specified, non-natural radioelements can be radioactive..... radioelements at levels above normal backgrounds". Is this the proposed deminimus for non-naturals?
2	Section 2.2, p8	About PRSE. This is not right. The 14.8 Bq/g applies to a solid or liquid substance in which Schedule 1 elements do not exceed 14.8. The elements given in this paragraph are the "listed elements" for which the relevant limit is 37 Bq/g
2	Section 2.2.1	The information included about IWS is far too detailed for this document. We have hardly started formulating our thoughts on IWS and to place this level of detail may foreclose our options. Also, we do not consider the LCBL and NTWP to be in place for the purpose of implementing an IWS
2	Section 2.3, last line	Should "and" in the last line be "any"
2	Section 2.4, p9	it should be made clear that EPA in general does not apply to radioactively contaminated materials.
2	General	Too much emphasis on rad legislation, needs more info on non rad waste management issues
2	General	Needs more info on what an IWS is, this needs clear UK wide definition
2	General	Is there a definitive driver for BPEO assessment of clean wastes or is this an added extra, I strongly believe that for clean waste streams they are a waste of time.
2	Section 2.4	Section 2.4 needs to be expanded, my experience is this is the area where the readership has the least experience. The waste management exemption section needs to be more relevant and relate to the activities on site. It would be useful to clearly state case law (meyer parry etc) and the definition of waste. This is a major risk area in developing a strategy. I would also like to see more emphasis in the document on the best means of using WML exemptions for on site use of materials, this is the most sustainable option for clean wastes.
2	General	The waste management exemptions must be more relevant so that the reader can be made aware of the available options for C and D wastes
2	2, para 1, line 2, p5:	change comma to full stop, to give "...requirements. The primary..."
2	2, para 1, line 4, p5:	this is the first time that the RS Act is mentioned, so add date – 1993 – and put abbreviation in brackets – (RSA'93) – for clarity
2	2, para 1, line 5, p5:	this is the first time that the EP Act is mentioned, so add date – 1990

2	2, clearance bullet point, line 1, p5:	in brackets add 'as defined in previous bullet' after 'radioactivity', to read "...radioactivity, as defined..."
2	2.1, para 2, p5:	can you see the HSE consultation results affecting your project? if so, how?
2	2.1, para 2, p5:	on what basis can eventual end points be defined without an agreed end use in an LCBL?
2	2.1, para 2, line 5, p5:	perhaps you should add 'potential' to "...eventual end point...", as these could be over 100 years in the future and no decision should be made now that would foreclose on options
2	2.1, licence condition 14, p6:	what about post-closure safety cases – how defined?
2	2.1, licence condition 33, line 1, p6:	'conditions' sho/// be singular
2	2.1, licence condition 33, line 4, p6:	add 'be' to give "...need to be in accordance..."
2	2.2, para 1, line 4, p6:	add apostrophe to give 'Parliament's'
2	2.2, para 1, last line, p6:	'Cm 884' rather than 'Cmdnd'?
2	2.2, second quote, line 3, p7:	change 'if' to give "...course of the production..."
2	2.2, last para, line 7, p8:	define 'secular'
2	2.2.1, quote, line 3, p8:	'ionising' instead of 'ionizing', as in 2.3
2	2.2.1, para 2, line 3, p8:	put 'BPM' in glossary, to give fuller definition
2	2.2.1, para 3, line 4, p8:	add 'that' and 'need' to give "...consider that the LCBL and NTWP for each site need to be..."
2	2.2.1, bullet point 1, p8:	you use 'ALARP', but I don't think you've explained it yet, put in glossary
2	2.4, bullet point 1, line 1, p9:	no need for hyphen between 'sets' and 'out'
2	2.4, land reclamation para, line 5, p10:	'3' needs to be superscript to give '20,000m ³ '
2	2.4, construction para 2, line 4, p10:	change 'terns' to 'terms'
2	Page 8	There is currently uncertainty as to whether environment agencies are planning to introduce a new condition in authorisations to address IWS. You should check with the agencies before final publication.
2	p.5, Section 2	Please indicate the year of legislation for the Radioactive Substances Act and the Environmental Protection Act
2	p.6, Section 2.1	Under Licence Condition 33, need to insert 'be' in the last sentence
2	p.7, Section 2.2	In italic section defining radioactive waste – typo – should read 'in the course of production...'
2	p.7, Section 2.2	Please clarify that RSA '93 refers to all isotopes of the elements in Schedule 1
2	p.8, Section 2.2	It would be useful to refer the Table outline Schedule 1 from RSA 93 - Table 2.1
2	p.9, Section 2.3	"This implies that even when a waste material may be exempt from regulatory control under RSA "3, reuse or recycling application that occur off-site may remain subject to regulation under IRR'99"
2	p.10, Section 2.4	Under Construction and Soil Material – typo – 'terns' should read 'terms'
2	Section 2.1, p6	Typo in the final sentence; should be "Radiations" not "Radiation" in the 1999 Regulations.
2	Section 2.2, p7, SoLA	2nd sentence: does not exceed 0.4Bq/g

2	Section 2.3, last sentence	last sentence is confused. Also, to be pedantic, SoLA exempts material from regs and excludes waste from regs.
2	Section 2.4	EPA Radioactive waste is not controlled waste and should be made clear.
2	Section 4, penultimate sentence	I think that this is misleading as SoLA waste is sent for reuse and recycling without further control. 'In an uncontrolled manner' is an unfortunate phrase and should be avoided, suggest you use 'without further control'. Even clean waste is not dumped 'in an uncontrolled manner'. Waste above 0.4Bq/g and 14.8Bq/g will need an authorisation for reuse/recycling but could still have minimal control once sent off site.
2	Section 4, last sentence	This is confusing as in section 7 exempt wastes are considered with clean and excluded material. I suggest you consider them here or separately, but not with waste requiring an authorisation.
2	Section 4.3	Section 4.3 is missing This section could benefit from referring to the EC guidance on clearance levels RP89, RP112, RP122 (many of these are levels in excess of 0.4Bq/g)
2	Section 2.1, through section 2.4, p5 to 10	Move content to appendices, as explanation of the various Acts of Law should not form part of the main report.
2	Section 2, p5	when referring to acts of parliament please include the year of the legislation e.g. Radioactive Substances Act 1993.
2	Section 2.2, p6	There has been a lot going on in EU recently with regard to the definition of a waste – maybe this should be referred to?
2	Section 2.2, p7, point 1	point 1 at base of page – replace 'but' with 'not'.
2	Section 2.2	a thought is that there may be too much detail about RSA 93.
2	Section 2.2.1	Article in ENDS Dec. 2004 – government proposing removing BPEO from national strategy. Should this be noted?
2	Section 2.2.1, p8	need to define ALARP also need to indicate that it is not always the 'best' option which gets implemented as a result of a BPEO.
2	Section 2.2.1, p9	Query how practical it would be to carry out a BPEO study to identify optimised strategy for waste minimisation, reuse and recycling.
2	Section 2.4, p9	Should there be a point that Hazardous Waste Regulations are being introduced to bring UK in line with EU directive.
2	General	Having said that this chapter has a better balance, the first paragraph is so balanced but those immediately after it, preceding section 2.1 are not. Again the primary classification is presented as the radiological one and to avoid any misapprehensions you need to caveat this by some means. You might add a paragraph that might begin: 'All material that might be considered for re-use, recycling, in-situ disposal, or off-site disposal in any place other than an existing radwaste disposal site such as Drigg, will also be subject to consideration under the UK's waste management regime under EPA 90' etc. - or something such. > The potential nuisance (in the legal sense) here is that by saying 'excluded' and 'exempt' alone an operator might be lulled into believing that such materials can then be re-used or stored as he sees fit - without a waste management license or groundwater risk assessment or whatever else might actually be required. A clear caveat directing the reader to section 2.4 from each of the 'clea
2	Section 2.4	This is nicely put but I would suggest that you also include clear reference to the slightly odd Groundwater Regulations that were put in place to fill a gap under EPA 90. These effectively ensure that where any material, exempt or otherwise under RSA, is put on the ground in the absence of the need for waste management controls, groundwater protection requirements are still satisfied.
2	Section 2.4	The WML Regulations definition of waste is key and I would suggest that you underline this. In this context it is perhaps also worthwhile emphasising the potential significance of sloppy use of the word 'waste', and stated intentions to discard, in early planning documents prior to a full assessment of options. Such usage may well foreclose on options that might otherwise have been available later.
2	Section 2.4	It is probably also worth mentioning that one should formally agree what is exempt and what is not with the regulator involved at as early a stage as possible, and maintain some means of review with that party so as to avoid risk in both regulatory and project space.

2	Section 2.4	You also do not mention timescales for storage. One example that we are aware of currently is where clean inert material is being temporarily removed from one licensed site to another, there to be stored until it can be re-used as fill on the first site. The storage area is subject to planning permission under the Town and Country Planning regime. The transport and storage activities themselves are subject to Waste Management Licensing under EPA 90 - which in turn requires a groundwater risk assessment and limits the storage period to 3 months. Lastly the use of another landowners land requires a formal lease and, because it is a licensed site, consent under License Condition 3.
3	p11	It is very pessimistic to suggest that there are 1 million m3 of LLW waste from demolition. Something like - 'There will be circa 1 million m3 of potentially contaminated material from demolition, significant quantities of which will be LLW' ? Is more accurate
3	para 1	Presentational inconsistencies in Para 1 RW1 '04, rwi 2004
3	para 2, final para.	Delete "such"
3	General	Clearly still a work in progress, and the report can indeed be very useful in identifying the large amounts of material which are "behind the wire" of Licensed Sites and thus publicly perceived as suspect, but which are in fact clean or exempt.
3	General	Does this section need to reference the recent CoRWM Inventory report?
3	General	Would it not be possible to give rough estimates of the composition of the waste types e.g %concrete, metal, soils etc, these can be generic for a typical industrial demolition application.
3	General	It should also be noted that the majority of the sites do not have sufficient disposal capacity for this material even at high recycling rates.
3	3, para 2, p11:	CoRWM have been working on an expanded RWI – would any of their work help your project?
3	3, para 2, p11:	add sentence "CoRWM has recently undertaken work on the UK inventory, identifying gaps and issues in the approach adopted in the RWI (ref)."
3	3, para 2, line 5, p11:	remove 'such' to read "Thus, RWI'01..."
3	3, Sellafield para 1, line 4, p11:	add 's' to read "...these wastes have..."
3	3, Sellafield para 1, line 7, p11:	'3' needs to be superscript to give '1 million m3'
3	3, Sellafield para 1, line 9, p11:	'3' needs to be superscript to give '1 million m3'
3	3, Sellafield para 2, line 1, p11:	add comma after 'However' to make sense of sentence
3	3, Sellafield para 2, line 1, p11:	add 'a' to read "...maintain a similarly..."
3	3, Sellafield para 2, line 4, p11:	'3' needs to be superscript to give '1 million m3'
3	3, Sellafield para 3, line 2, p12:	the 'current financial year' is stated as 2003/4, but it is 2004/5 now
3	3, Sellafield bullet point 3, p12:	what do you mean by 'social' waste? can this be explained any better? put in glossary
3	3, Sellafield bullet point 4, p12:	remove 'ly' to read "...wastes total approx..."
3	3, Sellafield bullet point 4, p12:	"...to Drigg..." would be better as "...to the facility at Drigg..."
3	3, UKAEA Corporate para, line 1, p12:	start a new sentence to read "...compiled. Data..."
3	3, Dounreay para, line 3, p12:	remove 's' to read "...DRWI system is,..."
3	3, Culham para, line 1, p12:	explain 'JET' in full? put in glossary
3	3, Culham para, line	'3' needs to be superscript to give '11,500 m3'

	4, p12:	
3	3, Culham para, line 5, p12:	change 'meter' to 'metre'
3	3, Culham para, line 6, p12:	'3' needs to be superscript to give '17,000 m ³ '
3	3, British Energy para, line 3, p12:	is there a 'typical' NPP that can be used to extrapolate this data or is it a complete guess?
3	General	useful to include a comparator for volumes in chapter 3, e.g. X number of football pitches to X depth?
3	p.11, Section 3	Inconsistent syntax used in reference to RWI'o4 (also referred to as RWI2004)
3	General	Good – Concise review of the factors relating to a description of the waste Inventory.
3	Section 3, p12	please define 'social' waste better.
4	4.1.9	Section 4.1.9 may illustrate a weakness in this chapter in that re-use or recycling processes may not always be similar to the original material use. For example, asphalt road planings may be re-used in the foundations layers for paths or roads, since they are not fit for purpose for the final surface finish.
4	Table 4.1	How is non-rad contamination dealt with e.g. organics, toxins, heavy metals - what are the relevant regulations that are the equivalent of RSA93?
4	Section 4.1.7	Is there no use for timber as heat/energy?
4	General	This chapter is interesting but not absolutely necessary. The relevant information could be summarised and presented in a few figures/tables. This would make the guidance more accessible and usef ul.
4	General	The text dealing with legal constraints and Policy on designation of waste could go into Chapter 2.
4	Section 4.1.3, para 2	Why has this text not been placed in 4.1.2? It relates to glass.
4	Section 4.1.8, para 3	This text relates to glass and would be better in 4.1.2.
4	Section 4.1.10, final para	"Missed" should be "mixed"
4	Section 4.1.11, para 3	The final sentence of para 3 is ambiguous - there are/are not! Which is correct?
4	Section 4.2	Economics and practical issues - The final sentence should refer to the waste regulator.
4	General	Re-use/Recycling potential: Section 4 is helpful if only in exposing the challenge. Waste managers already know that most re-use or recycling cannot be market-driven: as 4.2 points out, even crushed concrete needs preparation, and transport to the point of use, as against locally sourced aggregate. The key is to bring the high costs and limited availability of the alternatives into the equation. I would like to see 4.2 extended to include facts about the alternative disposal options – Drigg et al -, since it is these which mainly drive the need for off site recycling.
4	General	In general the spelling, grammar, succinctness and layout need much attention. If 4.1 is split into 4.1.1 etc, so should be 4.2
4	Section 4.2, p19, para 7	I will just pick out as an example the paragraph on Page 19 starting "Economics ..." Apart from grammatical and readability issues, what do we learn? Do you know a waste manager who does not involve their regulator in every project?
4	Section 4.2, p19, para 8	I am also unclear where the following paragraph "Policy." takes us. The BMRA are only too well aware of this thorny topic. Either omit, or explain the relevance more clearly.
4	Section 4.1.1, p15, para 4	The phrase "There are not specialised pre-processing requirements for .." recurs. (Grammar: for "not" read "no" throughout). This is misleading. For example in 4.1.1 there is inherent contradiction. Segregation and crushing are specialised pre-processes. The authors need to rethink their definition of "specialised" to clarify their meaning.
4	Section 4.1.5	Reinforcing steel is insignificant, both as a low proportion of typical arisings by weight and as being difficult to extract from the concrete.
4	Section 4.1.5	Suggest "the structural frameworks of buildings" for "structural frames in"

4	Section 4.1.5	High demand" is misleading. The huge scale of the market for structural steel means that even if every last steel item is recycled off nuclear sites, the market would not notice the difference. The scrap industry needs to be persuaded to take what they perceive as "nuclear" steel. The industry is fearful of radioactivity in general, and the fact that recycled clean/exempt steel for nuclear decommissioning is 100% safe needs to be addressed against the perceptions and suspicions. In the UK, 3Mt of scrap steel is melted annually, and 7Mt exported. It would be good for Section 3 to estimate steel arisings, but my guess is 10,000t absolute maximum annually, 0.1% of UK throughput.
4	Section 4.1.5	If "almost all" waste steel is recycled, (I would check the source for this assertion) it is because the high cost and limited availability of the alternatives drives it. The value of scrap steel - about £50/t - may be high compared to CDW, but it is not high enough on its own to drive recycling.
4	Section 4.1.5	The third paragraph of this section needs attention. It is improbable that steel would be sold direct to a re-melter. It needs to be sheared first to make arc-furnace feedstock, or to be suitable for export. I'm not sure what the term "specialist re-processor" means here, as opposed to scrap merchant. My suggestion: "Steel will be segregated at the site and sold to a scrap processor who can effectively manage the potential issues surrounding receipts from a nuclear licensed site". I would suggest that the words in italics apply across the board.
4	Section 4.1.6	I am not certain, but I would guess that it is not generally practical to recover zinc from galvanizing. Check first, but probably omit zinc.
4	Section 4.1.8	Glass has obtruded into the third para?
4	General	See comments to Ch 2. The guidance should put the record straight on the subject.
4	Section 4.1	The only point I wish to make is to remind you that there is now a report on CDW for 2003 that replaces the 1999 survey used for section 4.1.
4	Section 4.10	before top soil I think it should read "mixed" into concrete or asphalt mixes
4	Section 4.2 "Product acceptability", p19	Would argue with the fact that if material is free from radioactive contamination there should be no issue. If material is sourced from a nuclear site and is to be re-used, the fact that it originated from a nuclear site will cause public concern. To this end, those involved in the supply and distribution chain may not wish to accept such material as there is little markets available for its use. Public acceptability of material sourced from a nuclear site is a major issue eg the "Santas Grotto" escapade at Dounreay.
4	Section 4.2, p19, para 5	Although radioactively contaminated materials may be decontaminated and found to contain no radioactive material the fact that they have been used by the nuclear industry may prevent their reuse. The example in the press recently that recycled steel from nuclear sites has been used in baby buggies caused considerable concern amongst the public.
4	General	Why are we recycling?: primary aggregates tax. Landfill tax, lorry movements, fewer landfills, lack of waste management exemptions, environmental impact, cost, difficulty in getting the material disposed of off site, these all need to be stressed. It is also best practice in the real world. In most cases the most sustainable option is also the cheapest.
4	General	For Dounreay and for other sites a major use of C and D wastes is for the remediation of the site at the end of decommissioning. This material could account for upto 80% of the total C and D waste generated from decommissioning, it would need to be processed before it could be used.
4	Section 4.1	this is a vital point that needs to be stressed more
4	Section 4.1	I am fairly certain there is more up to date info on C and D waste use on the aggregain web site
4	Table 4.1	the table could be clearer
4	Table 4.1	The larger available amount of capital investment in the nuclear sector means that the levels of investment needed to achieve much improved re use and recycling are realistic. In the construction industry there is not the same amount of money available for investment
4	Table 4.1	I have been told that many UKAEA buildings have a standard off the shelf design, this should allow accurate assessment of the types and quantities of inert materials. I would recommend such an approach if there are common building designs.

4	Section 4.1.1	there are a number of high quality concrete waste streams such as floor slabs, shielding and large scale structural concrete, these materials can be separated and would make an excellent secondary aggregate
4	Section 4.1.1	Is the information relating to the replacement of primary aggregates with secondary concrete up to date, there has been a number of recent SEPA and EA guidance documents on specifying secondary aggregates.
4	Section 4.1.1	Crushed concrete makes excellent bulk fill, sub base and bulk fill, although these are lower specification uses it is still a use of a secondary aggregate. Don't forget crushed concrete can be used for drainage media for landfill caps and French drains.
4	Section 4.1.1	We can afford to separate good concrete if it can be used in higher volume applications, don't forget the concrete used in nuclear facilities is very good quality (at least I hope so!)
4	Section 4.1.2	glass is not really worth considering, the recycling market is struggling to use glass and the quantities likely to be produced by decommissioning are not sustainable, glass can be used in most aggregates and may not need separating. If glass is separated I would recommend it goes to landfill as it is a totally inert substance and has no environmental impact when landfilled.
4	Section 4.1.2	Construction wastes: I note that construction wastes from new builds are not included, this waste stream could be significant. New build projects have already been incorporating sustainability measures in them and have appropriate waste plans for wastes derived from construction. It is still important that the generation of hazardous materials during construction is minimised and that re cycled products especially from on site are specified at an early stage where possible. An example would be secondary aggregates for bulk fill and landscaping purposes. There is still allot of over engineering going on with new build projects, this needs to be addressed to reduce waste production.
4	Section 4.1.3	This is the biggest single waste stream likely to be generated from decommissioning, it therefore needs more attention paid to it, rather than concentrating on use, we need to cover disposal and use in restoration as this is likely to be the most important issue. I would expect allot more in this section such as waste characterisation (inert/non hazardous, waste codes, contamination, likely disposal options
4	Section 4.1.4	unlikely to be a significant waste stream as many of the buildings have little or no architectural brickwork, plus they would be tainted with the nuclear industry and therefore not fetch a premium price.
4	Section 4.1.5	existing disposal routes exist for this material via local and national scrap merchants (for both clean and exempt waste) because of the high price of this material, the market is always strong. UKAEA is working with the scrap industry to improve systems. Scrap will always be the most sustainable option for clean and exempt steel
4	Section 4.1.6	not really an issue, again scrap can be used for clean and exempt waste streams. Care is needed with lead contamination and the contamination of scrap waste streams
4	Section 4.1.6	Not large amounts of clean and exempt lead is being produced from shielding, this material can be re used in an unprocessed state for shielding
4	Section 4.1.7	if we have a crushing and screening wood could be processed in the same plants, all sites will nee organinic matter for restoration, this can be composted.
4	4.1, table 4.3, plastics para, p14:	amend 'alike' to 'the like'
4	4.1, table 4.3, glass para, p14:	add 's' to read "Alternative uses for..."
4	4.1.1, para 1, line 2, p15:	remove 'd' to read "...to segregate from..."
4	4.1.1, para 2, line 4, p15:	add 'that' to read "...uses that the..."
4	4.1.1, para 4, line 1, p15:	remove 't' to read "...are no specialised..."
4	4.1.1, para 4, line 3, p15:	change 'of' to 'or'
4	4.1.2, para 3, line 1,	remove 't' to read "...are no specialised..."

	p15:	
4	4.1.2, para 3, line 2, p15:	add 'of' to read "...re-processors of which..."
4	4.1.2, para 3, line 3, p15:	remove 'of' to read "...number in the UK."
4	4.1.2, para 4, line 1, p15:	remove 't' to read "...are no specialised..."
4	4.1.3, para 2, p15:	is this paragraph in the right place? – it talks about glass – if it is meant to be here, you need to decide whether 'it can be readily' or 'is hard to' segregate, then remove 'd' from segregated
4	4.1.3, para 4, line 1, p16:	remove 't' to read "...are no specialised..."
4	4.1.4, para 2, line 1, p16:	leave a space between 'block' and 'work', as in all other uses of word
4	4.1.4, para 3, line 1, p16:	remove 't' to read "...are no specialised..."
4	4.1.4, para 3, line 2, p16:	start a new paragraph after 'third party.'
4	4.1.4, para 3, line 3, p16:	remove 't' to read "...are no specific..."
4	4.1.7, para 2, line 2, p17:	should 'glass' be 'wood'?
4	4.1.7, para 3, line 2, p17:	change 'of' to 'or' to read "...little or no..."
4	4.1.7, para 3, line 3, p17:	amend 'alike' to 'the like'
4	4.1.7, para 3, line 3, p17:	change 'manufactures' to 'manufacturers'
4	4.1.7, para 4, line 2, p17:	add 'it' to read "...boards it should..."
4	4.1.8, para 2, line 3, p17:	what is 'HDPE'? explain? put in glossary
4	4.1.8, para 3, line 1, p17:	'10/90%' seems a very wide range – should it be one or the other?
4	4.1.8, para 3, line 1, p17:	should 'pane glass' be 'plastic'?
4	4.1.8, para 4, line 1, p17:	add 'of' to read "...collection of infrastructure..."
4	4.1.9, para 2, line 1, p17:	amend 'dependant' to 'dependent'
4	4.1.9, para 2, line 4, p17:	amend "...which I governed..." to "...which is governed..."
4	4.1.9, para 3, line 1, p17:	remove 't' to read "...are no specialised..."
4	4.1.9, para 3, line 2, p17:	amend 'alike' to 'the like'
4	4.1.10, para 2, line 1, p18:	delete 'and recycling'
4	4.1.10, para 3, line 1, p18:	remove 't' to read "...are no specialised..."
4	4.1.10, para 3, line 2, p18:	change 'and' into 'to be', to read "...material to be used..."
4	4.1.10, para 3, line 2, p18:	should 'french' have a capital? explain what it is in glossary
4	4.1.10, para 3, line 3, p18:	amend 'missed' to 'incorporated'

4	4.1.11, para 1, line 2, p18:	delete 'during decommissioning'
4	4.1.11, para 2, line 1, p18:	change 'off' to 'of'
4	4.1.11, para 2, line 3, p18:	spurious full stop at end of sentence
4	4.1.11, para 3, line 1, p18:	remove 't' to read "...are no specialised..."
4	4.1.11, para 3, line 1, p18:	spurious full stop after '...top soil.'
4	4.1.11, para 3, line 1, p18:	"There are/are not specific..." – which is it?
4	4.2, Added value processing para, line 3, p18:	add 'into' to read "...making into concrete..."
4	4.2, Costs and availability para, line 1, p19:	remove 's' to read "market values..."
4	4.2, Legal constraints para, line 1, p19:	amend "...activities are control by..." to "...activities, controlled by..."
4	4.2, Legal constraints para, line 2, p19:	remove 's' to read "...dictate w hich..."
4	4.2, Legal constraints para, line 3, p19:	remove 's' to read "...which it is..."
4	4.2, Legal constraints para, line 6, p19:	delete 'are' to read "Exemptions set out..."
4	4.2, Legal constraints para, line 7, p19:	transpose the 's' and 'n' to read "...Regulations..."
4	4.2, Legal constraints bullet point 1, line 1, p19:	change 'C&D' to 'CWD', as used previously
4	4.2, Legal constraints bullet point 2, line 1, p19:	remove duplicate 'of soil'
4	4.2, Legal constraints bullet point 2, line 1, p19:	change 'C&D' to 'CWD'
4	4.2, Legal constraints bullet point 4, line 1, p19:	change 'C&D' to 'CWD'
4	4.2, Policy on the designation para, line 3, p19:	add 'ed' to read "...sufficiently reprocessed, ..."
4	4.2, Policy on the designation para, line 5, p19:	change 'C&D' to 'CWD'
4	General	in chapter 4, there are now some examples of overseas recycling operations – perhaps, in an annex, all overseas info could be set out? It may give confidence in operations that have been tried and tested
4	General	There are some useful points here, but the text appears to have its origins in general guidance. There would appear to be some benefit in aligning the guidance to the nuclear industry, for example: 1) - are there other 'exotic' materials which should be addressed (e.g. zinc bromide from shielding windows)? 2) - are there large quantities of some materials, such as lead? 3) - are there particular problems specific to the nuclear industry which need to be flagged here? The assertion in the section

		'product acceptability' that there should not be problems if materials are certified free of radioactive contamination will not hold for some industries who are concerned about their customers' perceptions.
4	p.13, Section 4	Is this trying to say that the type of material arising from site to site is broadly similar for all categories considered?
4	p.15, Section 4.1.3	Reference to glass in the Demolition Material section – should this be moved to Section 4.12.2
4	p.16, Section 4.1.3	"Currently approximately 50% of demolition material is recycled and the remainder is sent to landfill as controlled waste"
4	P.17, Section 4.1.7	Some contradiction – states specialist pre-processing is required for Timber and then states that it is not
4	p.17, Section 4.1.8	Third paragraph of section is unclear
4	p.17, Section 4.1.9	Need to specify that the waste is the road pavement i.e. "Road pavement arises in decommissioning waste..."
4	p.18, Section 4.1.10	Repeat of recycling
4	p.18, Section 4.1.10	75% of tyres recycled – is this all tyres or just from Nuclear Industry – assuming all UK, but please clarify
4	p.19, Section 4.2	Policy on the designation of waste – states that WRAP only implies to inert wastes before reprocessing – and excludes contaminated wastes – is this radioactively or otherwise?
4	General	In Section 4 it would be useful to capture experience to date on UK decommissioning sites with reuse and recycling of both clean, excluded and exempt waste and VLLW.
4	Section 4.3	Section 4.3 which relates to the recycling and re-use of RSA exempt wastes and wastes at the lower end of the LLW category (0.4 – 4 Bq/g) is missing from the text. This will be an important part of the document it is very unfortunate that it has not been completed by this late stage in the consultation process.
4	Section 4, p13	I see no need to add further detailed information to this section. It already provides a comprehensive account of all significant waste elements. Adding more words would be just that!
4	Table 4.1	Table 4.1 includes both soil and hard material including concrete and brick rubble. This is unhelpful as in general, hard wastes are taken separately as their secondary uses at the higher levels of reuse are distinct from those of soil.
4	Tables 4.2 and 4.3	Tables 4.2 and 4.3 are actually confusing. The potential applications are sometimes trivial and incomplete, and these tables do no credit to the other good work in the document. The purpose of the report is to provide guidance for the beneficial reuse of wastes arising from the decommissioning process, and the key issues are to do with levels of acceptable and deemed safe radioactivity, ways to use material that has some residual activity in applications that would be safe, and ways in which the regulations and legislation which are unclear in this respect may be best interpreted.
4	Section 4.1, p14	should not whether waste is segregated or not be determined as part of a BPEO and be included up front in a decommissioning plan rather than by the waste manager?
4	Section 4.1.1, p15	What about secondary issues re; dust, water contamination. It may be better to carry out such activities at a dedicated facility. It would be useful to include a list of positives and negatives of all of these.
4	Section 4.1.2, p15	felt that this section is somewhat a repetition of previous sections.
4	Section 4.1.6, p16	Copper – surely some of this would come from electrical applications.
4	Section 4.1.9, p17	According to landfill regulations storage for greater than one year leads the site to be designated as landfill.
4	Section 4.1.11, p18	At Magnox sites topsoil has tended to be imported for re-profiling.
4	Section 4.2, p18	The cost of disposal should be factored into Production and processing costs if material is not recycled. It may be more economical to recycle yet earn nothing and pay for transport rather than pay disposal costs.
4	Section 4.2, p19	the contaminant may not pose a threat to the environment – this will depend on

		the quality form and new environment.
4	Section 4.1.1 P15 Sentence that begins "Currently 75% concrete"	I don't know where this figure comes from. The ODPM figures for Hard CD waste show around a 90% recycling rate, and this includes brick. Clean concrete must be over 95% recycled.
4	Section 4.1.1 P15 Sentence that begins "There are no specific quality relating"	Standards are the Highways Agency Specification for Highways Works, the new BS-ENs for Aggregates, BS 8500-2 for concrete and the Quality Protocol for the Production of Aggregates fro Inert Waste (required by the EA to show recovery from waste.
4	Section 4.1.2 P15 Sentence that begins: "There are not specialised pre-processing requirements for glass"	WRAP PAS 101 standard for glass cullet
4	Section 4.1.3 P16 Sentence that begins "Currently approximately 50% ..."	Use figures from ODPM 2003 survey of CDEW
4	Section 4.1.3 P16 Sentence that begins "There are not specialistdemolition material"	Aggregates produced from concrete, brick, asphalt are within the scope of HA SHW, new BS-ENs for aggregates, BS8500-2 as RA and the Quality Protocol.
4	Section 4.1.4 P16 Sentence that begins: "There are not specialist...brick and blockwork"	Definition of Waste issues should be addressed, recycled aggregates will remain a waste if not produced to the Quality Protocol.
4	Section 4.1.4 P16 Sentence that begins: ""There are not specialist...brick and blockwork.."	Aggregates produced from brick are covered by the same standards as listed above for concrete and other hard CD materials. RA (in BS 8500-2 can be 100% brick.
4	Section 4.1.9 P17 Sentence beginning: " There are no specialised ... road planings ..."	Recycled asphalt planings (RAP) are included in the HA SHW and can be blended up to 50% in new hot asphalt. RA can have a 5% recycled asphalt content. All recycled aggregates, including RAP come within the scope of the new BS-ENs.
4	Section 4.1.10 P18 Sentence beginning: " There are no specialised ...tyres ..."	There is a standard produced by ETRA, the European Tyre Recyclers Association, available from their web site http://www.etra.eu.com/
4	Section 4.2 P18 Sentence beginning: "Concrete blocks or other ..."	This is in all probability not practical, but it could be incorporated in ready mixed concrete produced on site or in asphalt production on site with cold lay asphalt technology.
4	Section 4.2 P18 Sentence beginning: "In the southeast ..."	It is crushed rock that is not produced in the SE, there is plenty of sand and gravel
4	Section 4.2 P19 Sentence that begins " A new protocol developed ..."	It is accepted by both EA and SEPA
4	General	Again, CDW falls subject to conventional waste statutes as well as good practice.
4	General	The word 'waste' is used repeatedly rather than 'material' and does this not itself provide a presumption of it being 'discarded' rather than 're-used', thus falling foul of the need for licensed disposal? Giving guidance on this

		particular, presentational, matter may be wise as otherwise options might be foreclosed in an innocent fashion.
4	General	You should preface this section with a reminder that the conventional waste management regimes do still apply here unless exemption is specifically agreed with the appropriate regulators as far in advance as possible, which might include both the local planning authority as well as the relevant environment agency. Surprises in this frame could be very expensive in terms of delays in project programme.
4	General	Crucial for planning purposes, an operator needs to know beforehand the bounds on certain exemptions - such as timescales for storage. The criteria are subject to change.
4	General	Currently such cautions are buried within the list of 'controlling factors' in 4.2. You need to bring reference to these more towards the fore.
5	General	Some of this could be put in an appendix
5	Sections 5.1 and 5.2	Sections 5.1 and 5.2 are not relevant to the guidance document. The description of the stakeholder workshop and the process used to handle the data arising from the workshop should be put in a separate report.
5	Sections 5.3	Section 5.3 could be retained in the guidance document. A short introductory paragraph referring to the UK Government "Quality of Life" Sustainability Indicators (Appendix A2) and 5.3 would provide clearer guidance.
5	Section 5.2	I was co-author of the EA/SEPA guidance. I don't think our attribute list was really designed for this purpose, and there are some obvious omissions in this context. Environmental equity for one. Also, the SD-SPUR guidance seems to imply that Stakeholder Acceptability should be an attribute, whereas Section 4.3 of the EA/SEPA guidance says that.... "Some past studies have there included stakeholder acceptability explicitly as an attribute against which to compare strategic options. This is however not generally recommended, for the following reasons: - Some technical attributes used in the options analysis (e.g. safety or environmental performance attributes) may well be major factors in determining stakeholder acceptability. If public acceptability is also used as a measure of performance, there is the danger of 'double counting' particular issues. Consultative processes are the preferred means of identifying the underlying criteria on which acceptability depends, so that they can be effectively incorpo
5	Section 5.3, p24, indicator 11	Personally, I don't think operators will favour novel processes. BPEOs normally include attributes designed to avoid them and so minimise project risk. I would not have included this one therefore, but of course I do not have the full background and there may be persuasive arguments?
5	Section 5.3, p13, indicator 13	Options supported may be more likely to succeed, but may well not be the BPEO. I would also be wary of this (as above).
5	Section 5.3, p18, indicator 18	Level of inward investment simply scores higher the more money is spent, which is wrong and not sustainability. It should be the balance of investment, not the level?
5	General	Section 5 is worthy, but probably tells waste managers little to help them make different decisions to those they would otherwise make. Raising awareness is perhaps no bad thing.
5	Table 5.1, p21	nuisance (noise, odour and visual impact) appears twice in the table. It is suggested that it appears once under one or other heading.
5	Table 5.4, p24	table group B references 3 and 4. BAT suddenly appears but is not explained. It is suggested that BPM should be sufficient.
5	Table 5.4, p24	table group B reference 5. The impact of radioactivity on species has been found to be a lower order effect compared with other activities by man and that if we wish to make an impact on sustainability of species then resources could be used more effectively.
5	Table 5.4, p24	table group B reference 8. Suggest that after reuse add "and disposal"
5	Table 5.4, p25	Group E although costs may be quantified it is important that costs are not disproportionate from the benefits that can be gained from sustainable activities.

5	Section 5.3, p25, final para	last paragraph second line what are the "issues at hand". This needs to be explained.
5	5.2, table 5.2, point o, p23:	suggest amend 'Drigg' to 'Drigg facility' or similar
5	5.3, table 5.4, point 3, p24:	explain acronym 'BAT' – put in glossary
5	5.3, table 5.4, point 6, p24:	suggest amend 'Drigg repository' to 'repository at Drigg'
5	5.3, table 5.4, point 9, p24:	'2' needs to be subscript to give 'CO2'
5	5.3, table 5.4, point 12, p24:	this seems to be suggesting that end-points should be decided now, but this could foreclose better waste management solutions that arise in, e.g. a later generation – inter-generational choice
5	5.3, table 5.4, point 19, p25:	how can the full 'cradle to grave' costs be quantified if this takes over 100 years?- will Treasury cost discounting rules be used to calculate a Net Present Value? – state this?
5	General	in chapter 5, the use of these large, indicator tables is confusing, especially as they often break across two pages – perhaps these are the type of items that would conveniently fit in an appendix
5	General	General point: There is a need to be very clear that not all the indicators proposed are relevant for consideration in all cases. Also it would seem that attributes currently included as 'standard' in BPEO assessments could be slightly re-defined to cover sustainability aspects. There is the danger at the moment that all these indicators need to be considered in addition to those suggested in the EA guidance resulting in upwards of 30 attributes for consideration – which is unwieldy and unmanageable.
5	General	In section 5 there is currently no reference to the Nuclear Industry Sector Plan, agreed by all parts of the nuclear industry and EA & SEPA, which includes sustainability indicators – there is a need to be careful that the project is not re-inventing the wheel. However, this plan has not yet been launched.
5	Table 5.4, indicator 7	Include 'recycled' in indicator
5	General	Without stating the obvious, the sustainability indicators are heavily dependent on those stakeholders who were present. Has enough work been done to establish the views and positions of people who were not present and those who would not be able to come? How do the report authors know that the attendees were in any sense representative of society and what account has been taken of future generations explicitly as silent stakeholders?
5	Section 5.1, p21	the term sustainability indicators sounds like KPI terminology, which is misleading.
5	Section 5.1, p21	indicators tend to be time based measures, what is being discussed here are sustainability attributes which can be used to define the relationship between one option and another. Need to be clear as to whether the purpose is indicators or BPEO.
5	Section 5.1, p21	environmental impacts should be considered as part of the BPEO process. Also it is unlikely that a BPEO would be carried out just on the reuse and recycling of wastes. Sustainability means looking at the bigger picture.
5	Section 5.3, p23	(1) & (2) the need to split current and future generations is queried. During a BPEO if it is made clear that the health and safety should apply to the lifecycle of the project there is no need to split.
5	Section 5.3, p24	5) Impact on biodiversity is sufficient. Most projects are inside a site license boundary, which is kept clear of wildlife.
5	Section 5.3, p24	(6) & (7) it is difficult to predict the amounts of waste – it would be simpler to assess the overall amount of waste and then assess the potential for recycling.
5	Section 5.3, p24	(8) – Should this not just be transport of material – but all transport required to process the waste.
5	Section 5.3, p24	(11) would not the new technical developments be the options being assessed?
5	Section 5.3, p25	(13) what is a formal stakeholder?
5	Section 5.3, p26	There is some confusion about whether a BPEO and sustainability assessment is part of one process or not – please clarify. Also for small and clear projects a

		BPEO would not be carried out.
5	General/Table 5.2	The first mention of 'duty of care' in this document apparently comes as item 'I' in Table 5.2. The Duty of Care requirements for conventional waste should perhaps be described in chapter 2. > One might also add the 'polluter pays' principle to the same list! > Also 'regulatory approvals', as opposed to the very much softer 'stakeholder acceptance' already included.
5	Table 5.4	Under Table 5.4, as item 5, you loosely gather the statutory nature conservation interest under 'biodiversity' - which actually reflects the narrower (often local authority, planning, driven) interest following the Biodiversity Convention. It is increasingly pertinent to mention the provisions of the EC Habitats Directive; criteria here include whether or not 'a significant impact on the functional integrity' of the habitat concerned is involved. There is currently a statutory duty on all consenting authorities to consider the need for an 'appropriate assessment' if a Habitats site is involved. As many of the nuclear sites are on the coast, many are closely bounded by such Habitats sites.
5	General	Presumably in scoping sustainability criteria you looked at the output of the Sustainability Commission under Jonathan Porritt. I would note that the various (five?) 'pillars' of sustainability have subsequently been used by the Cabinet Office's Foresight process - most recently in their Flood & Coastal Defence project - and this provided a very clear, graphical, means of assessing a large variety of options.
6	General	You could shift most of this into an appendix and use a summary table
6	Section 6.1	Could also consider "mothballing" – i.e. look for potential further use of building in current form
6	Table p28, items 15 & 16	These are real opportunities not threats e.g. at Harwell (commercial/residential redevelopment) and Rock Flats USA (Wildlife park)
6	Section 6.2, p29, para 3	in law cannot return to "Greenfield"
6	Table p30, items 15, 16, 17 & 18	these are opportunities not threats, and are realities at Trawsfynydd
6	Section 6.3 p30, para 4	in law cannot return to "Greenfield"
6	Table p31, items 15, 16, 17, & 18	these are opportunities not threats
6	General	This is a key section and provides good guidance.
6	Section 6.1, p28	Planned deconstruction table states: "Group B 8 - Material transport - Unless on-site uses can be identified, all materials will need to be transported from site to the market". This would be more realistic if it was stated the other way round: "Only materials for which a market is identified would need to be transported from site. [prior knowledge of the existence of such markets would influence the extent of the planned deconstruction]".
6	General	The start of section 6 suggests that the optioneering appraisal is conducted by the waste manager. As BPEO is a corporate decision, more emphasis has to be given to how it is conducted and by whom
6	Section 6.1, p27, para 1	warehouses are being turned into flats, hotels etc provided the location is desirable. Therefore this general statement needs to be re-examined.
6	Section 6.1, p27, para 2	radioactively contaminated buildings could be decontaminated and used for other purposes provided that the perception aspect that this once was a contaminated building can be overcome. This is true for other contaminants e.g. asbestos so why not for radioactive contamination?
6	Section 6.2, p29, para 2	the term brown field status need to be explained.
6	Section 6.2, tables, p29	The three tables could be condensed into a single table.
6	p31	for contaminated materials with short half lives delay in demolition should be considered to reduce the exposure of those undertaking the work.
6	6, para 3, line 6, p26:	add 'd' to give 'Integrated'
6	6, para 4, line 4, p26:	add 'be' to read "...may be because..."

6	6, para 5, line 3, p26:	remove 'and/'
6	6, last para, p27:	such studies should be subject to local consultation through the relevant NDA Site Stakeholder Groups and other appropriate mechanisms
6	6.1, para 1, line 4, p27:	'hangar' is spelt with two a's
6	6.1, para 1, line 4, p27:	change 'of' to 'or'
6	6.1, para 5, p27:	refurbishment opportunities are finite, though new build could help – in order to generate long-term good effects there would need to be a socio-economic plan in place.
6	6.1, table xx, point 4, p28:	'2' needs to be subscript to give 'CO ₂ '
6	6.1, table xx, point 19, p28:	could refurbishment costs also be higher than rebuild too?
6	6.2, para 2, line 3, p29:	earlier in the report, it implied that bricks were expensive and labour-intensive to clean, now it says "...simple cleaning and sorting..."
6	6.2, para 5, line 5, p29:	'hangar' is spelt with two a's
6	6.2, para 5, line 5, p29:	is it correct that these types of buildings are also likely to have asbestos?
6	6.3, para 5, line 1, p30:	remove 'of' to read "...demolition is..."
6	6.3, table xx, point 10, p31:	add 'be' to read "...to be produced..."
6	General	This appears to mainly concern structures such as buildings. If this is the target of the guidance it needs to be made clear elsewhere, e.g. section 1.2.
6	p.27, Section 6).	"That said, there are a number of comments that could be made of each waste management scenario" – this sentence does not lead anywhere at present – needs something more to lead it in to Section 6.1
6	p.29, Section 6.2 & p.30, Section 6.3	The Housing Planning Policy Guidance Note 3 (PPG3), Annex 'C' provides a definition of Brownfield sites:Previously -developed land is that which is or was occupied by a permanent structure (excluding agricultural or forestry buildings), and associated fixed surface infrastructure. The definition covers the curtilage of the development. Previously-developed land may occur in both built-up and rural settings. The definition includes defence buildings and land used for mineral extraction and waste disposal where provision for restoration has not been made through development control procedures.Under this definition it would appear that it is not possible to return a Nuclear site to 'Greenfield' even if all buildings on the site have been demolished and the site has been laid to grass. It is felt the term 'Greenfield' is misleading
6	General	I think this should be after section 7.
6	General	I do not find that the tables really help to distinguish between the options. The summary after the table is helpful, but I find it hard to distill that from the table itself. There are a lot of 'redundant' indicators.
6	Section 6, para 5	Clean up and reuse of a contaminated building is an option and has been done in the past. Do not discount it.(also applies to 6.1, para 2)
6	Section 6.1, Table xx, p28. Ref 13	Comment text needs to add that need to demonstrate that it is clean.
6	Section 6.2, para 2	SoLA exempt waste could also be released for uncontrolled use.
6	Section 6.3, para 4	delete as it is not relevant here.
6	Section 6.4, p31	By definition the site-wide strategy is the coherent accumulation of the building-by-building approach. In no circumstances will deconstruction and decontamination take place in a uncaredful or inconsiderate state.
6	Figure 6.1	Figure 6.1 does not show (as it claims) end points – there is another layer required in the figure
6	Section 6, p26	please reference Guidance on sustainable building methods which should be used (3rd para).

6	Section 6.1, p27	it should be noted that planning permissions, NII approval and site licence would all have an impact on whether a building could be refurbished for reuse.
6	Section 6.1, p27	need to be clear whether table applies only to non-rad waste or not. Same comment is applicable to table on p.29.
6	Section 6.1, p27	Table – (11) would assume that what is meant is removal of metal components from reactor buildings rather than the reactors themselves.
6	Section 6.1 - 6.3	Again, same theme as above. In developing the scenarios there is the need to remind the reader that conventional waste regulations and exemptions, and planning permissions, may be appropriate.
6	General	There is no obvious reference to project scoping and the maintenance of appropriate risk logs. Scoping is absolutely key but both are an effective means of reducing project risk. There is much experience on this - and a lot of documentation associated particularly with infrastructural projects in the US. It may be helpful if you were to present the scenarios within such a project frame.
6	Section 6.4	Perhaps even more important to have a project management framework here with the scoping and risk log tools in play. The cost implications of unmanaged risk to programme otherwise could be very high indeed.
7	p32, para 3	should also add "implementation of this guidance could however prove to be a commercial differentiator for a contractor in the eyes of his client"
7	Section 7.4.2, p35, para 4	'stakeholder acceptability' should not be a BPEO attribute, this should be built into the evaluation of each of the true attributes
7	Section 7.4.2, para 2	It is not appropriate to include indicators that do not discriminate between options in a study. However, the reason why they have been excluded should be reported.
7	General	Again, this is a section that provides good guidance.
7	General	There is a great potential conflict between guidance for waste managers on individual sites and guidance for 'strategy developers'. They are not necessarily the same thing. An example is the consideration of steel which is contaminated or has induced radioactivity. A waste manager will only consider those forms of re-use or recycling or management which are readily available to him on site, and those options may be delimited by the relatively small amounts of such materials on site. A 'strategy manager' on the other hand might see the very much larger quantities across all sites as significant, and in the context of a world steel shortage regard the re-use of such LLW steel (after treatment) in ILW storage containers as worthwhile. Public acceptance of re-use of contaminated steel might be more likely if it was seen to be 'integrated' with ILW, rather than dispersed or 'controlled' simply by being dumped in a hole on-site. However, if the means of achieving such methods required the transport of contaminate
7	General	Waste management on individual sites could be better if the managers were given access to LLW steel treatment techniques (for example) that might only be justified across several sites. The re-use of contaminated materials on-site in a controlled way can demonstrate that a responsible waste management regime exists. The problem with the suggested re-use of processed CDW on 'other nuclear sites' is not just that the transport of low value material many miles by road is unsustainable, it is that public suspicions will be raised and undo the whole strategy. In the 1980's supposedly 'benign' waste materials were trucked from Glasgow to a landfill site in Radnorshire. No assurances given were accepted as the fact of 640 mile round trips, with the heavy transport costs involved, spoke for themselves.
7	Section 7.2	One issue that is not addressed in stakeholder discussion is the Public Relations aspects and also the fact that getting something wrong can lead to the situation whereby any waste cannot be reused or recycled. Thus, local stakeholder acceptance may not be the sole issue if UK wide there is reluctance to accept any wastes from decommissioning. Thus, adopting the second approach is more risky and it may be that a dual approach is best ie combining the two options.
7	Section 7.3	Clearance levels have been, and continue to be, developed for a number of materials. Within the European Union, for example, the Article 31 Group has made recommendations on clearance levels for a number of important radionuclides in metals, buildings and rubble arising from the dismantling of nuclear installations. The IAEA has developed clearance levels for release of radioactive materials from medicine, industry and research and is also developing clearance levels for general application to any solid material. Thus, clearance levels for the most important radionuclides are available for a range of different materials. References are included below under general

		comments. One issue that has not been discussed is the possibility of export of materials. IAEA has developed intervention exemption levels to allow unrestricted international trade in commodities (DS 161)
7	Section 7.4.1, para 1, p34	"disposal route for a radioactive waste"
7	Section 7.4.1, para 1, p34	"where appropriate and where permitted by the RSA authorisation, options"
7	Section 7.2, para 3	there is a perception problem with the recycling of radioactive materials which was described above in the case of baby buggies.
7	7, para 2, line 4, p32:	delete 'to' to read "...consider implement..."
7	7.2, para 1, line 6, p33:	move 'a' to read "...within a site-wide..."
7	7.2, para 1, p33:	1) this is very important! - if no-one is prepared to accept potentially contaminated goods and, thus, there is no real market, this project is a waste of time and money. 2) I know that CIRIA wrote to many local authorities and other bodies at the start of this project, but it was yet another issue that needed time spent on it and there is just not enough capacity.3) could CIRIA hold joint events with, perhaps, the NDA – as they are transforming Local Liaison Committees into National and Site Stakeholder Groups. 4) CoRWM events could also be hijacked (!) as they, too, are starting to hold their own National Stakeholder Groups next January. 5) you need to get this issue into the stakeholder subconscious, so you need wider promotion – local radio/newspaper items, local workshops, etc. – can this recycling/re-use/refurbishment put money back into the local community, can it help maintain the level of work even if it is diversified. 6) the LGA Special Interest Group can help with promotion and information-giving
7	7.2, para 3, sentence 1, p33:	in particular for NDA sites, the Site Stakeholder Groups will provide an obvious mechanism for reaching such agreements
7	7.2, para 4, line 1, p33:	for ref – refer to The Environment Council publications
7	7.2, para 4, line 3, p33:	for ref – put The Environment Council website address
7	7.4, point 8, line 3, p34:	add 'that' to read "...factors that may..."
7	Section 7.4.1	This states: "BPEO is about determining the best <i>disposal</i> route for a waste". We would contest this: BPEO concerns a very wide range of interim and final management options for wastes.
7	p.35, Section 7.4.2	It is stated that there is a case for inclusion of sustainability indicators that do not discriminate between options. This case may be made, but it should be stated that does somewhat contradict accepted multi-criteria analysis methodology which encourages that non-discriminating attributes are not considered.
7	Section 7.2, p33	This section would benefit from a summary of the lessons learned from the stakeholder engagement models referred to. If at all possible guidance on what constitutes an independent peer reviewer would be beneficial.
7	Section 7, para 5	BPEO studies are also done for higher activity wastes ie all those requiring authorisation and this guidance could apply here. In particular, the VLRM type of wastes would benefit from this as limited recycling could occur in industry, under authorisation.
7	Section 7.1, para 3	This is discussing site wide strategy and section 6 says that you cannot develop a site wide strategy
7	Section 7.4	Make it clear that BPEO not required for SoLA or PSRE exempt waste. Is it wise to recommend BPEO for all wastes?
7	Section 7.4.1	Do wastes that remain under NIA 65 control still require an RSA authorisation for reuse/recycle?
7	Section 7.1, p32	Irrespective of whether sites have defined a IWS, there may still be a business need to undertake individual BPEO studies. This option should be embraced

		within the overall methodology.
7	Section 7, p32	It the aim is sustainability the first place to start is through waste minimisation – this should be considered/referred to.
7	Section 7.1, p33	the emphasis of the assessment is not just likely to lie on the qualitative arguments embodied within it – this is where it does lie- the main point of a BPEO is capturing the reasoning behind the numbers.
7	Section 7.2, p33	If a peer review cannot be carried out by the Agency who else is in a position to do this?
7	Section 7.4, p34	Who has recommended that nuclear sites adopt BPEO approaches? Also what wastes are suitable for BPEO approach? There is a danger that every waste is assessed via BPEO, removing management out of the process and also common sense. BPEO may not always be appropriate.
7	Section 7.4, p34	point 6 – the sensitivity analysis tests the validity of the overall decision, not whether safety is more important than cost etc..
7	Section 7.4.3, page 35	How should weighting be carried out then? The options must be scored even if this is relative to one another. This allows novel methods to be included. Ranking is relative to one another not absolute ranking.
7	General	Sustainability Commission output, Foresight, as above?
7	Section 7.3	Non-rad as well as rad, I trust. You need to maintain a balance here.
7	Section 7.4.3	title omits 'of'
7	Section 7.4.3	As US DOE Superfund staff would say, the key means of managing uncertainty is obtaining enough data on the material, or site, that needs to be managed. No mention of this is made here and indeed elsewhere in the text little is made of the need to have a firm understanding of the nature of the material involved except for the occasional reference to 'characterisation'. Both type 1 and type 2 errors can be expensive. The US DOE Data Quality Objectives approach has the merit of allowing an informed discussion in house, or between an operator and regulator, of the cost effectiveness of data gathering in relation to this type of risk.
7	Section 7.4.2	You refer, at the very end of 7.4.2, to the importance of the maintenance of records on decision making processes. Again, clear mention of initial project scoping, the maintenance of a project risk and even specific environmental risk log, and a cycle of review involving the most appropriate expertise (the US documents often point to the need for an 'environmental generalist' in this role) would seem appropriate.
7	Section 7.4.3	Regulatory costs, and the costs of dealing with planning processes, consent applications etc. + subsequent cost recovery charges. All pertinent. Also, in some instances there might be the need for contingency or land remediation/restoration sums.
8	General	We are developing an inert waste strategy for the site, we need to start to co ordinate the work being done at Dounreay with the needs of this project
8		Cannot comment, not written yet!
Appendices	A3	A3 adds nothing to the report and should be omitted. This information should be presented in a separate report on the stakeholder workshop (also see 7 above).
References	General	Little mention of non-rad regulations here and allied advice. Sustainability Commission docs.? Are there not pertinent refs from CIRIA on controls on demolition waste, even perhaps embedded within working on construction site type guidance?
References	General	Lastly, I could not find the list of participants in the workshop.

Structure specific comments

The following questions were posed:

- Does the document have a logical structure?
- Which sections could be moved out of the main report into appendices?
- What length of document do you feel would have greatest impact?
- Does the document require user guidance on how to navigate through the document?
- Does the contents list provide an appropriate level of detail?

Reference	Comment
Structure	Does the document have a logical and clear structure? - Yes
Structure	Which sections could be moved out of the main report into appendices (possibly supplied electronically)? None but provide the existing appendices electronically
Structure	What length of document do you feel would have greatest impact? Taking away the appendices keeps this document about the right length
Structure	Does the document require user guidance on how to navigate through the document? No
Structure	Does the contents list provide an appropriate level of detail? Yes
Structure	The whole report should be more concise, with background material all in appendices.
Structure	Since the readership is probably at least as aware of the regulatory framework and waste inventory as the authors, Sections 2 & 3 ought certainly to be an appendix.
Structure	Most of Section 5 should be in an Appendix, with a one-page summary in the body of the report.
Structure	I think the main document should be less than 30 pages long. Therefore as indicated above things could be moved to appendices (with hyperlinks if possible).
Structure	I think the work produced so far is sound, well ordered and easily understandable. However I do agree with the Steering Group that Chapters 1-6 could be put in appendices, and Chapter 7 given prominence.
Structure	The document would benefit from the inclusion of an Executive Summary. The regulatory framework could be moved out of the main report into an Appendix or an Annex as this is supporting information. The shorter the length of the document the better and this could be achieved by removal of some repetition e.g rather than having three tables in Chapter 6 have a single table combining the sustainability indicators and showing the differences. The small print use in the document and the long paragraphs make the document difficult to read. The use of photographs or diagrams, for example in the recycling area would add to the interest of the document and break up the large blocks of text.
Structure	some of the radiological legislation could be removed from the text body to the appendixes
Structure	The length of the documents is fine
Structure	In general the document has a logical structure and presents useful guidance for decommissioning strategists, planners and waste managers in the nuclear industry.
Structure	The content is generally considered appropriate but the document is over long. Suggestions to resolve this matter are given in the content specific comments
Structure	It is unfortunate that the summary was not written; this forced reading of most of the document in order to understand what it was about.
Structure	The document needs to say at the very beginning why it has been written, who it has been written for and what it is trying to achieve.
Structure	The guidance should be made more prominent; much if the rest, such as the section on regulatory arrangements, should be relegated to an appendix or supporting document.
Structure	Should the guidance section (Chapter 7) be made more prominent? - Yes
Structure	Sections 3 & 4 are useful, but could be moved to Appendices. These provide useful information regarding categorisation of waste streams and options for their re-use/recycle. But this is not core to how a Waste Manager needs to go about deciding what to do.
Structure	The report should not be overlong, especially as it is directed at the Waste Manager on site.
Structure	Does the document require user guidance on how to navigate through the document? - No
Structure	Does the contents list provide an appropriate level of detail? - Yes
Structure	as the report is laid out at present, I think that chapter 7 should be after 1.1 to 1.3
Structure	1.4 could be put in an appendix
Structure	chapters 2, 3 and 5 could be put in an appendix
Structure	chapters 4, then 6 could follow chapter 7
Structure	chapter 8 last
Structure	What length of document do you feel would have greatest impact? - Short and sharp, with as much extra info as possible in appendices
Structure	Does the document require user guidance on how to navigate through the document? - No, I think all users should have enough knowledge already
Structure	Does the contents list provide an appropriate level of detail? - Yes
Structure	Does the document have a logical and clear structure? - YES
Structure	Should the guidance section (Chapter 7) be made more prominent? - NO IT WOULD SPOIL THE FLOW OF THE DOCUMENT

Structure	Which sections could be moved out of the main report into appendices (possibly supplied electronically)? - I BELIEVE THAT THE BALANCE OF THE DOCUMENT IS CORRECT AND APPROPRIATE TO THE TOPIC UNDER DISCUSSION
Structure	What length of document do you feel would have greatest impact? - I DO NOT BELIEVE THAT THE DOCUMENT CAN BE SHORTENED WITHOUT REDUCING ITS EFFECTIVENESS.
Structure	Does the document require user guidance on how to navigate through the document? - YES THIS WILL IMPROVE ITS EFFECTIVENESS.
Structure	Does the contents list provide an appropriate level of detail? - YES SUBJECT TO USER GUIDANCE
Structure	The document is too long. It would benefit from the detailed sections 2.1-2.4, and 4.1.1-4.1.11 going into an appendix.
Structure	It is stated that the report is aimed at waste managers and strategy developers. They will (hopefully) be aware of the regulations that govern work in this area and thus much of section 2 could be (as stated above) easily put in an Appendix. There are however other regulations such as transport regulations which have an impact on waste management which have not be mentioned. Similarly contaminated land regulations may also play a role in waste management decisions and these are not mentioned.
Structure	Section 7 Guidance should be before Section 6 as it lists the indicators and then Section 6 shows how they are applied to options. In general the flow between Sections 5, 6 and 7 is not clear enough. Perhaps it would be better if some of the text in Sections 5 and 6 were removed to Appendices and Section 7 expanded with the pertinent parts of the current Sections 5 and 6.
Structure	The report would benefit greatly from an expanded Section 1 which describes exactly what is in the document, the logical flow etc. to aid readability.
Structure	It is stated that the report is to provide guidance for waste managers and strategy developers. The report as it stands reads more as a report on a project ie it includes everything done as part of the project. More thought should be given to the audience. Do they really need the Sustainability Workshop photo-report that is intended to be Appendix A? Similarly what use is Appendix A3 to them? Perhaps it would be better to have two documents one describing this study and another, much shorter, report providing guidance to waste managers and strategy developers most of whom will be only too aware of possible recycle/disposal options and certainly the regulatory regime in which the operate.
Structure	The document has no final summary section describing the study this would be useful.
Structure	Document structure is logical and clear.
Structure	Chapter 7 should be moved too directly after the introduction.
Structure	See specific comments relating to Chapter 2, plus everything after the current page 38 e.g. all appendices.
Structure	See general comments below, may also like to consider a separate document containing the Executive Summary plus a summary of the chapters. Total length say 10 – 15 pages.
Structure	Does the document require user guidance on how to navigate through the document? - ?The full document may require guidance; the shorter version should not.
Structure	Does the contents list provide an appropriate level of detail? - ?Entirely appropriate for this type of review.
Structure	I think that the length of document is not necessarily critical to its acceptability. The important feature of the report is whether what it contains is accurate, understandable, relevant and not available elsewhere
Structure	The document would not benefit from a guidance on how to navigate – the structure can be devised to be clear in itself.
Structure	If I have a concern about the report it is that it seems to relapse into rather long and perhaps unnecessary reprises of the routes for recycling of non radioactive waste when this guidance can be found in better form elsewhere. 4.1.2 to 4.1.11 is rather long winded and adds little or nothing to what the reader can find elsewhere.
Structure	In the contents page Section 2.1 is stated to be RSA '93 when it is about NIA '65

General comments

Comment
Most importantly, does this report meet the objectives stated in paragraph 1.2?
I do like the fact that the guidance recognises the importance of end use to the community and the need to seek stakeholder involvement in this and not focus solely on end points. Green fields are not what many communities want!
BPEOs and stakeholder issues are just two areas where the Safegrounds guidance provides a lot of detail. However the SD-SPUR guidance does not make any links at all (eg in Section 5.1). This seems distinctly odd. I assume the two have been compared to ensure that the BPEO guidance is consistent?
It's OK to leave stakeholder issues to other documents- the Safegrounds SH guidance is presumably the right level, summarises the lessons from the BNFL dialogue etc. and could be referenced in Section 7.2.
Section 4 deals comprehensively with clean materials. These really are not the problem though, are they? Section 4 is generic and not decommissioning-specific at all? 7.3 refers to the industry COP, but the COP is limited in scope and very technical. The wider issues associated with managing exempt and 'cleaned up' waste are greater and more controversial and surely the guidance would benefit from the various stakeholders' setting out where there is a consensus on issues in this area?
I may be pre-empting this, but it is vital to specify decision-makers and interested parties. Furthermore, would it be possible to identify them, then target which activity particularly concerns them?
Following on from this, it would be good to point up the need for joined-up thinking in the various government departments/agencies.
It would be useful to have a formal relationship with the various nuclear dialogues taking/having taken place, so that interested parties can see the breadth of thinking over the whole decommissioning issue.
References: 1) EC: Recommended radiological protection criteria for the recycling of metals from the dismantling of nuclear installations; Radiation Protection 89, 1998. 2) EC: Basis for the definition of surface contamination clearance levels for recycling or reuse of metals arising from the dismantling of nuclear installations; A. Deckert, 1999. 3) EC: Recommended radiological protection criteria for the clearance of buildings and building rubble from the dismantling of nuclear installations. Radiation Protection 113, 2000
The report is useful, but it does not provide practical and applicable guidance for dealing with inert waste on a day to day basis, the majority of the report covers background issues but does not move the issues forward by providing appropriate co-ordinated UK wide solutions. I feel because the readership is small and many of the issues common to all of the readers real life solutions could be given and risks to business highlighted.
I also felt that the use of the BPEO approach although a useful tool is not the most appropriate means of assessing sustainability for inert wastes. We should not restrict ourselves to tools used in the nuclear industry and instead concentrate on more practical market based approaches used by the waste and construction industry. I do not think a BPEO will produce an option which is actually workable, it is therefore advisable to establish disposal routes in the first place. The BPEO tool does not necessarily take account of the issues associated with the reputation of nuclear site wastes.
I also think that stakeholders will have little or no interest in these issues aside from lorry movements. I certainly think that in Dounreay's case a public consultation exercise will be a waste of time and attract little or no useful comments
The report needs to outline the types of infrastructure needed to store and treat inert wastes so as to produce recycled products, issues such as planning permission and waste management licencing need to be covered as they are showstoppers
No significant Structural critique, the paper was readable and well set out. It brought together the necessary discussion on regulations and policy guidance in a clear and reasonably concise manner.
The report raises issues to the attention of waste producers and refers them to further guidance; this I implicitly believe is the right approach.
I read the paper and only have a few comments. In general the paper is a good statement of fact. Having read it I'm now wondering about what the next step is? I guess the Dounreay study.
Plainly the existing picture cannot continue ? in future relatively benign decommissioning waste volumes arise in greater quantities. I would like to understand what is being aimed for? What our image of the future is. All this talk of BPEO/BPM/ALARA and sustainability is fine ? but a nice picture of the future would be good ? what are we aiming for? I think if the industry really pushes sustainable use of materials and that (something like) VLRM is used for roads/flood defences then along with optimisation of Drigg ? all our LLW will fit in Drigg (my opinion). I suppose this exceeds a 'guidance' brief.
This paper talks almost exclusively about "waste" but the project is about "resources" utilisation i.e. redundant/obsolete assets which may or may not be sentenced as waste
SPUR is about all resources arising from decommissioning on nuclear sites not just radioactively contaminated materials arising from decommissioning in nuclear sites– this thrust is not consistent throughout the document
Point out the importance of including sustainability issues in planning for decommissioning e.g. don't build on a licenced site unless essential!

<p>One of our reviewers has commented upon a strong bias towards RSA compliance with a limited consideration of conventional waste management requirements that are just as important. There is a need to allow such interests to be balanced and appropriate linkage needs to be made. Specific comments proposing changes/additions to the document will be forwarded by Colin Taylor although it will not be possible to do this within your requested timescale.</p>
<p>A general comment about syntax of units and chemical symbols. Cubic metres should be expressed as m³ and carbon dioxide is expressed as CO₂ not CO2.</p>
<p>The minimum consultation period under Government practice is 12 weeks – this round of your consultation has given only 3 weeks</p>
<p>There's quite a lot of syntax missing, which makes the flow difficult without keep stopping to re-read</p>
<p>'Drigg' should be referred to as 'the facility at...' – this is in line with Drigg/Holmrook Parish Council policy</p>
<p>Useful to add a glossary – gives ability to explain acronyms and terms without losing flow of dialogue</p>
<p>The document does not address the need to involve non NDA sites in the process.</p>
<p>Without being patronising the user guidance should address concerned stakeholders on all levels and disciplines.</p>
<p>The main message seems to be: Do BPEO studies for 'clean/excluded/SoLA exempt/PSRE exempt waste as well as for waste requiring an authorisation for disposal. When doing a BPEO study then include sustainability indicators. Guidance on sustainability indicators is then given. It would be useful to make this very clear.</p>
<p>The report main text should address the items in the aims, clearly and succinctly.</p>
<p>More reference to the industry code of practice and EC clearance levels needed.</p>
<p>Given the likely public perception problems with LLW it may have been better to focus this report solely on clean, excluded and exempt wastes which are reasonably well defined and to address the lower end of LLW (the range 0.4 – 4Bq/g chosen as part of the study) in a companion report. If for no other reason this would allow a detailed explanation of why this range was considered a useful one to consider.</p>
<p>The clear statement on page 3 regarding UKAEA's proposed VLRM waste category (<40 Bq/g) is welcomed but again raises question re why?</p>
<p>The final paragraph of section 1 is welcomed as a clear statement of intent however the paragraph above does again introduce the arbitrary 0.4 – 4 Bq/g range which again raises why issues that I don't think can be answered thoroughly in this document (see point 10).</p>
<p>Given the content of the report is currently focussed on clean/excluded/exempt waste it would have been useful to have some more detailed guidance on sampling and monitoring especially in relation to the categorisation of materials as clean.</p>
<p>There is an increasing trend in industry to produce shorter and shorter reports, and in some instances to move away from formal report altogether. Clearly that approach wouldn't work in this instance, however it is essential that any 40 page plus document (with the addition of Section 8) has an Executive Summary. Critical issues must be captured up front and clearly communicated to the intended audience.</p>
<p>Finally there should be an alphabetically ordered list of all Acronyms use in the review and this should be the first appendix.</p>
<p>The inclusion of process detail in the draft document detracts from the clarity of the guidance. The final report needs to present the guidance in a clear, user friendly manner. To help achieve this objective the practical aspects of the guidance should be strengthened and the process information removed from the main body of the report.</p>
<p>The final report should focus upon re-use opportunities</p>
<p>The final report needs to address Advocacy issues and should not be constrained by existing legislation or possible changes in legislation. The impact (positive, neutral or negative) of potential changes to radioactive waste category definitions/ limits needs to be considered. The project needs to demonstrate thinking "outside the box"</p>
<p>The output from the recent HSE sponsored Workshop on Metal Melting needs to be fed into the next phase of the SD SPUR project</p>