

SoBRA review of LCRM

<https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks/stage-1-risk-assessment>

Name: Society of Brownfield Risk Assessment (SoBRA) Executive Committee

General comments:	
<p>Positive:</p> <p>The links to sustainable remediation (SuRF UK) are welcomed.</p> <p>The section on Stage 3 - remediation is much improved in terms of clarity.</p> <p>The links to and inter-relation with the NQMS are welcomed.</p> <p>Links to useful guidance documents such as those contained on the CL:AIRE WALL are really useful.</p>	<p>Negative:</p> <p>The LCRM does not consider permanent gases or soil vapour in sufficient detail or with sufficient supporting guidance.</p> <p>The guidance does not appear to align with terminology used in BS10175, which we would recommend it should do.</p> <p>The guidance makes frequent reference to the NQMS, which is supported by the SoBRA accreditation scheme. However, no reference to the SoBRA scheme is included anywhere in the guidance.</p> <p>Unless all sections within each of the main headers (e.g. Stage 1, Stage 2 etc) are opened ('Open all'), the page is not fully searchable (i.e. to locate a specific word or phrase e.g. SuRF) which is unhelpful.</p> <p>In terms of the web-based format, could the links automatically open in a new/separate window? This would aid the reader in terms of structure and being able to return to the section being read.</p> <p>A 'Next Section' link at the end of each page would aid the reader in moving to the next section of the LCRM.</p> <p>Section numbers would be of use, along with a clear contents page. This would aid users when referring others to specific sections of the LCRM.</p>
Before you start:	
<p>General comment - We note that there are alterations to the terminology (relevant, reliable, unambiguous and sufficient) compared to CLR11, yet the previous terminology within CLR11</p>	

(relevant, sufficient, reliable and transparent) is included in later sections of the LCRM. Suggestion – terminology is consistent throughout.

Use a suitably qualified competent professional – ‘suitably qualified professionals’ is the terminology used later in the LCRM. Suggest consistency in terminology used throughout. Additionally, there is no detail on what is or maybe a relevant qualification or a relevant professional organisation, and what is considered to be sufficient experience. We consider this statement may be too generic - a suitably qualified competent professional is required for oversight of the work and technical review, but the level of qualification and competency will vary with the tasks assigned to that individual. Reference to chartership, SiLC, NQMS and the SoBRA accreditation scheme would be beneficial here.

Dealing with uncertainties – Suggestion – state uncertainties should be clearly identified along with the possible consequences of such limitations, to align to the NQMS.

Second to last sentence, suggest model calibration be included as well as statistical analysis and sensitivity analysis.

Links to other guidance – We are concerned that the LCRM appears to be promoting a single private consultancy GAC (the S4ULs), when various others are available including those freely available from the EIC and SoBRA, for different exposure scenarios. To prevent endorsement of private consultancy GAC perhaps the LQM/CIEH S4ULs be removed from the other guidance list and a generic statement be replaced instead such as *‘sources of generic assessment criteria derived in accordance with the methodology outlined in SR3 (Updated technical background to the CLEA model) and/or C4SL (Development of Category 4 Screening Levels for assessment of land affected by contamination - SP1010)’*.

Is there a reason why the C4SLs are not listed here? They are referred to later in Stage 1.

Stage 1: Risk Assessment

We are concerned that the LCRM appears to be promoting a single private consultancy GAC (the S4ULs), when various others are available including those freely available from the EIC and SoBRA, for different exposure scenarios. To prevent endorsement of private consultancy GAC perhaps the LQM/CIEH S4ULs be removed from the other guidance list and a generic statement be replaced instead such as *‘sources of generic assessment criteria derived in accordance with the methodology outlined in SR3 (Updated technical background to the CLEA model) and/or C4SL (Development of Category 4 Screening Levels for assessment of land affected by contamination - SP1010)’*.

Before you start RA:

Technical approach to RA – suggestion – it would be beneficial to include a definition of Source / Pathway / Receptor in this section.

Evaluate the risk

- suggest including at the end of the first sentence *‘together with a detailed knowledge of the CM’*.

- Part 2A example, would suggest for clarity that after human health the following be inserted in accordance with Part 2A of the Environment Act *‘or significant pollution of controlled waters is being caused or the significant possibility of such pollution being caused’*

- Suggestion, environmental quality standards be added to the example of evaluation criteria

Desk study checklist – suggestion – it would be beneficial to include *‘but not limited to’* in sections such as this where suggested contents of a report or document are being recommended.

- Recommend including coal mining or other mining related activities (current or historic).

Identify source-pathway-receptor linkages

- When referring to gas migration of volatile hydrocarbons into buildings is this intended to cover ground gases or vapours, or are both being referred to? Further clarity required.

Tier 1: PRA:

Define overall site objectives – the meaning of ‘preliminary, indicative or comprehensive’ is not clear with regards to the level of technical confidence needed. Suggestion – clarification of this terminology and to align with BS10175.

Identify source-pathway-receptor pollutant linkages – In section ‘Pathways will be specific to the receptor type. For example they could be:’ suggest altering 3rd bullet to *‘Migration of permanent gases (e.g. landfill gas) and volatile hydrocarbons in to building’*.

Conceptual model - in the bullet points covered by ‘You must show:’, suggest including *‘preferential pathways’*.

Tier 2: GQRA:

Identify appropriate GAC

- Relevant media, is ‘air’ referring to vapour? The term vapour is more consistent with other guidance such as SR3.

Identify appropriate GAC and ‘GAC must apply to the:’ – suggestion – include soil organic matter in the second bullet point.

Confirm if GAC are suitable – this text includes reference to SGVs, including links. Published SGVs do not use the updated exposure parameters currently built into CLEA 1.071 and used in other industry soil GACs. Suggestion – remove reference the use of SGVs. The guidance on using SGVs is still relevant as it explains the context of exceeding minimal risk assessment criteria for soils. However, from a technical perspective we consider it confusing to be appearing to recommend the use of an EA published SGV.

Use existing GAC – see earlier comment about use of private consultancy GACs.

- The different GACs would benefit from being broken down into the type or receptor they are relevant to.

Derive new GAC – “you must have sufficient specialist knowledge and exercise care”

Reference to SoBRA accreditation scheme would be beneficial here as referenced in the NQMS overview document.

Conclude GQRA – suggest including within the list of things to include *‘uncertainties and limitations associated with the CM’*. This is in line with NQMS requirements that these be stated explicitly.

Tier 3: DQRA:

Decide what information to collect for DQRA

- The range of information list provided focuses more on controlled waters, we would suggest this list be expanded to include *‘- current or proposed site-specific building parameters; - site specific exposure data, including receptor age classes and exposure frequencies’*
- Is there a reason why the nature of the vapour matrix is not detailed along with soil and water given that site specific vapour assessments should be conducted where appropriate?
- For ground gases see, suggest this be altered to *‘For ground gases and vapours see’*
- MCERTS is not applicable/available for all compounds suggest *‘where applicable’* be included
- Suggestion – include in 3rd bullet point (relating to the information you will need for the DQRA), *‘and/or the potential for the accumulation of daughter products’*, additionally make reference to daughter / degradation products in the section on *‘For DQRA, the range of information you will need...’*.

Assess the risks – the two bullet points imply that these are the only two options. Forward modelling can be undertaken in fate and transport models, with the predicted concentration at an assessment point then compared to the relevant GAC.

Select a DQRA risk estimate tool – this appears to be focused on controlled waters only.

Suggestion – other risk estimation tools are available for soil and groundwater, a list of (but not limited to) some other commercially available or free tools could be included e.g. RISC, RBCA, CLEA, CONSIM.

- In addition to checking model sensitivity, in line with good practice consider including *‘A model calibration exercise should be completed (where appropriate) to provide confidence in the predicted model results’*.
- For ground gases (in the text box) see, suggest this be altered to *‘For ground gases and vapours see’*
- The final sentence (after the text box) is unclear, there are no tools detailed in the box.

Conclude DQRA – suggest including within the list of things to include *‘uncertainties and limitations associated with the DQRA’*.

DQRA – whole section

As for GQRA, you must have sufficient specialist knowledge and exercise care. Reference to this and SoBRA accreditation scheme would be beneficial in this section.

Stage 2: Options Appraisal

In terms of structure, we found it initially confusing to have Tiers 1, 2 and 3 (which were already used in the RA section of the guidance).

Tier 1: Identify feasible remediation options:

Set remediation objectives and develop remediation criteria – the text implies such criteria only consider home-grown vegetables (Example 1). Suggestion – should this read *‘home-grown produce’* to align to the CLEA model and associated assessment criteria derived within the model?

- Suggest 'eliminate' be added to control or reduce
- Suggested additional bullet point '*source removal*'

Example 1

Rather than being prescriptive (or what could be read as being prescriptive) with regards to sampling frequency, suggested alteration to '*as agreed with the relevant Regulator*'.

Example 4

- Bullet point 1 seems a very specific example and a thickness which is very rarely used (1.2 m) perhaps a generic example would be more appropriate to avoid this stated depth being taken out of context. Recommend signposting to industry guidance on the CL:AIRE WALL or suggested alteration to '*as agreed with the relevant Regulator*'.

Text after Example 4 – Suggested additional text covering that imported materials brought to site must be fully validated, comply with current guidance and legislation, and must be suitable for use.

Plan ahead for regulatory controls and approvals – there is no mention of discharge and groundwater activity environmental permits. Suggestion – include these in the bullet list.

Stage 3: Remediation

No comments

Site Investigation:

General comment - We consider this (new) section would benefit from alignment to BS10175 with regards to the terminology used. It would be beneficial, throughout the section, to always use 'intrusive site investigation' for clarity. Within BS10175, site investigation covers documentary research / desk studies, as well as intrusive investigation.

Check the quality of the site investigation information – previously (the 'Before you start' section) slightly different wording was used. Suggestion – we would recommend consistency with either: relevant, sufficient, reliable and transparent or relevant, reliable, unambiguous and sufficient.

Reliable – see above comment about MCERTS. Suggest including that appropriate QA/QC checks (including trip blanks and duplicates) and calibration certificates (as relevant) should be available.

Transparent

- The term 'deal' in relation to uncertainty is not always possible. Suggest this be altered to '*you must record all uncertainties, identify consequences of such limitations and mitigate any uncertainties with unacceptable consequences (for example uncertainty identified in regards to inaccessibility for investigation locations to be targeted within a building; to mitigate uncertainty following demolition of the building further investigation should be recommended.*'

Text box for finding detailed information on sampling of soil and groundwater – there is no reference to soil gas or soil vapour. Suggestion – provide additional relevant links.

Reporting Requirements:

General comment - Align terminology throughout to BS10175 for clarity.

We consider the initial sentence regarding 'suitably qualified professionals' would benefit from using the same wording as in the section it links to (i.e. '*Suitably qualified competent professionals*') to avoid any confusion with a Suitably Qualified Person (SQP) under the NQMS.

NQMS section – suggestion – for clarity we would recommend including that there is a fee for the NMQS declaration.

Stage 1: Risk assessment reports:

General information for all RA reports – suggestion – we would recommend including in the bullet list uncertainties, data gaps and associated limitations.

Options appraisal applicability matrix:

<https://www.gov.uk/government/publications/land-contamination-remediation-option-applicability-matrix>

Useful table. Some formatting issues which could be resolved prior to finalisation, relating to printing.

Will this matrix be periodically updated with new method and/or options? It may become out of date fairly quickly.