

## Contaminated Land Expert Panel Initial Observations on Cases Reviewed

From the cases reviewed to date, the panel would like to make the following observations to help further local authorities in their determinations of sites.

It is always important for the local authority to systematically go through the statutory guidance and ensure that they have considered all the aspects they need to, such as:

- Has the significant contaminant linkages been identified?
- Has the probability that significant harm might occur been estimated?
- Is there a strong case for category 2 (if there is uncertainty, where does the doubt lie and why) ?

The panel has presented the information under the four key areas in line with what is required to be included within the risk summary as per section 3.35 of the EPA 1990: Part 2A Contaminated Land Statutory Guidance April 2012. The headings include: understanding the risks, understanding the uncertainties, putting the risks in context and possible remediation that could occur on the site.

### Understanding the Risks (section 3.35a)

- A clear presentation is required as to what has been considered to be Significant Possibility of Significant Harm (SPOSH) including details of the toxicological end point. It is not enough to just say something is above a Generic Assessment Criteria (GAC)/Site Specific Assessment Criteria (SSAC) without saying why it is SPOSH.
- There needs to be a good demonstration of the understanding of the risks associated with the site. There often appears to be sufficient raw inspection information available upon which to determine land as contaminated land; however the justification needs to be presented adequately in the risk summary in order to support a robust and transparent determination.
- A robust understanding of the history of the site and the processes that occurred or are likely to have occurred will help to develop a greater understanding of the distribution of contaminants across the site with an appreciation of the risks that they pose over time.
- A conceptual site model is always needed in order to put the contaminant linkages into context. The likely distribution of contaminants across the site as a result of historical activities needs to be explained together with the way in which the current receptors can come into contact with those contaminants, given the current and approved future uses of the site.
- Sampling density depths and spatial distribution should be developed, with spatial and depth profiles. This will allow for a better conceptual exposure model to be developed when matching current site use to contaminant distribution, as well as being able to interpolate the possible extent of contamination between sampling points.
- It is considered good practice to always look at the spatial distribution of contaminants in 3 Dimension. As a minimum a plot of concentrations and a depth plot of concentrations that reflect differing ground conditions should be prepared.
- Consideration of sample characterisation is extremely important. For example-are there different materials present, do elevated concentrations correlate with a particular material? Can this soil characterisation be used to split "surface soils" into, for instance, a "clean" cover layer and material at greater depths with higher concentrations? Where results are anomalous is there something in the sample (e.g. coal, tarmac) that might explain it?

### **Understanding Uncertainties (section 3.35b)**

It is important to provide detailed information to demonstrate and describe the uncertainties that exist on the site. For example:

- Uncertainties that exist in sample selection due to some areas not being accessible or where samples could not be obtained due to obstructions in the ground. These uncertainties need to be considered, identified and explained, as these can impact the decisions that are made with regard to the determination.
- Often there is a large variability of contamination levels identified across a site at different levels, therefore it may be useful to consider the hazard across the whole footprint of the site, mapping the site's former use.
- It may be appropriate to look at the whole site first rather than splitting the site into individual plots/zones associated with the most recent site usage. By looking at the whole site in zones, the site may split differently and help with decisions regarding whether to determine on an individual property basis or a whole/part site basis, with risk mitigation where some areas have not been visited due to obstructions such as concrete hard standing.
- The natural background level for different contaminants in the local authority area away from the site in question could be gathered and used as a starting level when considering uncertainty of contaminant concentrations.
- The use of bioaccessibility testing and or speciation analysis is encouraged where appropriate; however details of the choice of method used and assumptions made should be robust and be relevant to its intended use.
- Statistical analysis is encouraged to ascertain uncertainties across a site. It may be helpful to consider whether "outliers" consist of the same material as the other samples (suggesting they may belong to the same population) or are visibly different. Where sufficient samples permit, it could be worth considering whether a particular site zone belongs to the same population as the rest of a site or not?

### **Risks in Context (section 3.35c)**

- It is important to present the risk from the site in context to local levels and the potential exposure pathways that exist and the human health implications. For example, it may be necessary to identify typical levels in non-contaminated soil and through normal everyday activities to help put things into context.
- Risks can be described qualitatively and quantitatively depending on the source of the data.
- Care must be taken when comparing voluntary and involuntary risks.
- It is acknowledged that local authorities need to view their site issues in a real-world context, ie considering the actual likely effect of their decisions on the lives of the individual people involved and balancing the hypothetical modelled risk with issues of robustness/durability regarding a site's possible future use.

### **Possible Remediation (section 3.35d)**

- It is important to consider how the site is likely to be remediated. For example when remediating residential gardens, it may be beneficial to consider remediating a group of gardens together especially if plots do not have easy access. This may assist in reducing further risks to residents by preventing the requirement of transportation of soil through properties which could cause further risks to residents. This type of scenario may have an effect on the decision that the local authority makes when defining the boundary of any determined site.
- Post remediation, it is important to consider what information is provided to the site owner and where further information is recorded for future site owners to access e.g. property deeds.