Joint SAGTA & SoBRA Workshop
Category 4 Screening Levels: Industry Application

BAE Systems, Farnborough - 8th April 2014
Facilitated Plenary Discussion on C4SL implementation

Q1. What other compounds/ substances need C4SLs derived?

- Vanadium/ vanadium pentoxide. The International Agency for Research on Cancer (IARC) has determined that vanadium is possibly carcinogenic to humans. Both acute and chronic exposure to Vanadium dust documented.
- Free cyanide. Some research completed. The first version of SNIFFER (2000) worksheet has a methodology for cyanide. SoBRA have a subgroup for acute GAC, ingestion, dermal and inhalation risks. This methodology could be applied to free cyanide.
- Asbestos. To be most useful, derivation of the LLTC would be needed for each of the three different types of asbestos commonly encountered (Chrysotile "white", Amosite "brown", and Crocidolite "blue") .
- Naphthalene.
- Chlorinated solvents. PCE/TCE/DCE/TCA etc. VC especially as SGV is generally exceeded and is generally sensitive to toxicology.
- Mercury. Both inorganic and organic.
- TPH CWG.
- SR2 – mixtures above HCV value.
- PCBs.
- Dioxins.

Q2. What do we do when normal "background" concentrations (NBC) exceed the C4SLs?

For Part 2A, DEFRA policy is clear and there is information and guidance available for this issue, especially for lead.

With respect to the planning regime, this is more of an issue, as there is no clear guidance. Further information is required to complete the Conceptual Site Model:

- The form of the contaminant of concern.
- Bio-availability with respect to proposed land use.
- Mineralogy.
- Sample preparation and Lab testing methodology, e.g. the bio-accessibility test is carried out on the 250 micron fraction, which is different to the "Total lead" test, e.g. some oxidation states of metals are more bio-available.
- In CLEA, when using bio-accessibility data for lead, due to relationships with lead/soil, lead/in vitro and lead/diet, this not a straight correlation with BGS data.

BGS have published some bio-accessibility methodology. Further research is being undertaken to look at lead isotopes, extraction differences. Parent material sources affect mineralogy and availability. There would be a valuable role for BGS in keeping a central record of data from site specific work and keep.

Risk management strategies may play a more important role, for example:

- Review and revise land use may be an option: e.g. a site in South Wales has 400-1,400mg/kg bio-accessible lead with proven cases of horses died of lead poisoning. Risk management strategy was to change livestock to Black sheep which are less sensitive to lead toxicity.
- In London, where bio-accessibility testing may be inconclusive and background concentrations can be much higher, it may be more sustainable to remove pathway through change of end-use and/or complimentary master planning than by attempting to do so via risk assessment.

Q3. Should 1 organisation lead the derivation of further C4SLs or leave it to individual organisations?
Feedback from the Committees on Carcinogenicity and Toxicology peer reviews said that they would like to see one centralised group to take the lead on the derivation of further C4SLs. Although there are issues with funding such a group/ project, industry have research money funds and can consider other research projects.

One of the key learning points from the C4SL project is that data was peer-reviewed whilst working together which eliminated the need to re-check data.

Q4. Would industry benefit from the derivation of 'Semi-C4SLs'?
Although "Semi-C4SLs" could be derived by revising the GACs with updated exposure data, the group felt these would simply reflect the current situation and such levels would not be helpful.

There was appetite for "C4SL-lite" but this would still need toxicologists on board.

Q5. Why did DEFRA choose to carry out the C4SLs project rather than derive screening levels for the Cat 1/2 or Cat 2/3 boundary?
In order to be applicable to most sites, generic screening levels by design adopt assumptions that may be highly precautionary for the majority of sites. For this reason, it is not possible to derive generic screening values to indicate the higher boundaries of Cat 1/2 or 2/3. These boundaries can only be defined on a site specific basis through the use of DQRA and in the case of the Cat 2/3 boundary, through consideration of others factors such as risk context and sustainability issues.

Q6. Is additional guidance required for 'Imported material'?
Some local authorities are seeing developments where "imported "soil quality is worse than the soils on site. E.g. Asbestos, PAHs. However, the C4SLs are equally applicable to imported materials as they are for in-situ materials.

There are British standards for top soils and sub- soils.

The CL:AIRE 'Definition of Waste: Development Industry Code of Practice' version 2 allows for reuse of materials on site if "suitable" and direct transfer of clean naturally occurring soils from a donor site to a receiver sites subject to GQRA or DQRA.