clean up

MJCA Technical advisers on environmental issues

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Issue 8

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1983 – 2013
30 years of reliability in a changing environment

Category 4 Screening Level update

A revision to the Statutory Guidance of Part 2A of the Environmental Protection Act 1990 was published last year and it introduced a new category based system for dealing with risk assessment including the assessment of the 'significant possibility of significant harm' (SPOSH) whereby Category 1 sites are clearly contaminated and represent a high risk and Category 4 sites are clearly identifiable as low risk and not contaminated land. DEFRA commissioned CL:AIRE to produce, demonstrate and communicate a methodology for developing Category 4 screening levels (C4SL). CL:AIRE assembled a Steering Group comprising a number of members of the Society of Brownfield Risk Assessment (SoBRA) committee, representatives from the Food and Environment Research Agency (FERA) an executive agency of DEFRA and a contaminated land officer from a Local Authority. This group has now developed C4SL for six contaminants (arsenic, cadmium, chromium VI, lead, benzo(a) pyrene and benzene) using the CLEA exposure model which is the same risk assessment model software used to develop the soil guideline values (SGV) published by DEFRA and the Environment Agency. In preparing the C4SL the Steering Group has reviewed and changed the values for a range of input parameters used in the exposure assessment regarding the pathway and frequency for the potential exposure to contaminants. C4SLs will be developed for four generic land uses. These include residential with and without home grown produce, allotment, commercial and public open space. The public open space is considered under two scenarios, one which is a grassed area of up to 0.05 ha, with 50% bare soil, used by children and close to homes so that materials can be tracked backed to these properties and the other is park type open space greater than 0.5 ha, predominantly grassed, contain children's play equipment and only outdoor exposure pathways are considered.

Another key variation in this new approach is to apply a toxic threshold for contaminants referred to as a 'Low Level Toxicology Concern' (LLTC) which is based on the principle of 'low risk' level rather than applying the toxicological data which had been used to determine the Health Criteria Value criteria (HCV) which had been applied in the CLEA model to developed the SGVs which provides a 'minimal risk' level. The idea of using LLTC has raised a few concerns across the sector and therefore the C4SL Steering Group has consulted with the Committee on Toxicology (CoT) to explain the reason and principle associated with the use of LLTC in the risk assessment for contaminated soils. Whilst the CoT has expressed some concerns with regard to the application of LLTC they have concluded that there are no problems with the overall methodology. The C4SL Steering Group are proposing to change the value of the parameter applied in the level of exposure with regard to the assessment the Excess Lifetime Cancer Risk (ELCR). The CoT has recommended that further advice on this matter should be sought from the Committee on Carcinogenicity (CoC) with regard to these proposed changes. Following further peer review it is anticipated that the C4SL will be published later this year together with details on the methodology used. It will then be up to the sector to see if there are any joint efforts to prepare C4SL for a broader range of contaminants.

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The State of Nature

"...greenfield sites are passed over in favour of the development on brownfield sites and that wildlife on brownfield sites lack statutory protection..."

The State of Nature report has been published by the Royal Society for the Protection of Birds together with a coalition of conservation and research organisations and with contributions from a wide range of people and partner organisations. It is stated that the aim of this report is to *"...produce an authoritative assessment of the changing fortunes of nature in the UK..."*.

Some of the headline issues from this report are as follows:

- 60% of the 3,148 UK species assessed have declined over the last 50 years.
- Half of the species assessed have shown strong changes in their numbers or range, indicating that recent environmental changes are having a dramatic impact on nature in the UK particularly those with specific habitat requirements.
- A Watchlist Indicator shows that the overall number of species has declined by 77% in the last 40 years, with little sign of recovery.
- Of more than 6,000 species that have been assessed using modern Red List criteria, more than one in 10 are thought to be under threat of extinction in the UK.

The threats to the UK's wildlife are many and varied, the most severe acting either to destroy valuable habitat or degrade the quality and value of what remains.

In the chapter in the report on urban wildlife reference is made to the state of nature on brownfield land. The report claims that "*...Around 15% of nationally rare and scarce invertebrates have been found on brownfield sites, including 50% of rare solitary bees and wasps, and 35% of rare carabid beetles, and some are found nowhere else in the UK...*" Two case studies presented in the report highlight where rare species are found on brownfield sites. The concerns which are set out in the report suggest that the development of greenfield sites are passed over in favour of development on brownfield sites and that wildlife on brownfield sites lacks statutory protection. This claim does not reflect planning policy as there is a need to assess and protect wildlife and habitats on both brownfield and greenfield land development.

There is no doubt that some brownfield sites often referred to as previously developed land (PDL) can be important for wildlife. Some of these sites have been derelict for decades and consequently provide undisturbed habitats that have become a refuge for a broad range of species, particularly in urban areas. The challenge is to identify whether or not the existing biodiversity interest on brownfield land is of sufficient value to warrant avoiding any development of such land. However, the development of greenfield sites in preference to brownfield land is not necessarily the answer, nor is there a simple solution of dealing with the rare species of wildlife which may be present on some brownfield land and as such a 'one-size-fits-all' policy is not the answer.

The first decade of this century saw a considerable amount of brownfield land developed for a range of commercial, residential, public amenity and open space use, driven by a buoyant economy which provided the means and the finance for growth and development. The previous government set an ambitious target for the development of brownfield land of 60%. The coalition government introduced a new planning framework set out in the National Planning Policy Framework (NPPF) published in 2012. Rather than target specifically the development of a particular type of site, at the heart of the NPPF is a presumption in favour of sustainable development which needs to be taken into account throughout both plan-making and decision-taking processes. One of the core planning principles is to *"...encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value..."*.

Consequently there are a range of factors to take into account when considering the development of brownfield land and the planning system should enable development to contribute to and enhance the natural and local environment. It may be that under certain circumstances the development of brownfield land could have an impact on the local wildlife, although under other circumstances its development could improve the availability of open green space, benefit the environment and society and increase biodiversity.

The State of Nature continued

The views set out in the State of Nature report appear to suggest the development of greenfield sites over brownfield sites in favour of protecting the wildlife on brownfield sites although the report recognises that there are challenges facing UK wildlife and it is acknowledged in the report that the assessment carried out on wildlife is constrained by the availability of reliable data and that there are limitations in the conclusions presented in the overview.

Presenting a one page summary on brownfield land development in a 90 page report can hardly be expected to capture the complexities faced in the assessment and development of brownfield sites or the wider issues associated with the development of greenfield sites as an alternative. The State of Nature report does raise some interesting and important points regarding the type of wildlife found on brownfield land which has the potential to be overlooked although the planning system does have the means to address this currently.

New standard for ground gas assessment

A new British Standard BS 8576:2013 Guidance on investigations for ground gas - Permanent gases and volatile organic compounds (VOCs), has been published. The standard provides guidance on a range of ground gases including volatile organic compounds and carbon dioxide, methane and oxygen. BS 8576 has been created through the collaboration of experts within the field such as the Chartered Institute of Environmental Health, the Environment Agency and the Institution of Civil Engineers.

The new standard includes a framework for assessing development sites and the risks posed by gassing sites and guidance for the investigation of gases under Part 2A of the Environmental Protection Act 1990 and the Environmental Damage Regulations for example assessing the vapour risk from oil spills. It is intended that the guidance complements the BS 10175 document for the investigation of potentially contaminated sites - Code of practice. Therefore it is of particular relevance to development sites and the risks posed by gassing sites to neighbouring land and developments. BS 10175 advises early consultation with regulators when potentially contaminated sites are to be investigated. This advice applies equally to investigations for ground gas. Annex A of BS8576:2013 describes the regulatory framework in the UK and the roles performed by different regulators.

The guidance covers the importance of assessing information which is used to develop a conceptual model for the site and surrounding area including considering future receptors associated with the construction and completion of a new development, as well as existing receptors. To understand site conditions as well as is practicable and to be able to prepare a robust risk assessment, a range of information relating to the monitoring well installation and site conditions needs to be recorded and reported in addition to measured parameters such as gas concentrations and gas flow rates in the monitoring well. Chapters 9 and 10 of the standard set out details on the construction of monitoring wells, procedures for monitoring including the types of instruments to use, what information to record, frequency of monitoring and sampling, sampling techniques for laboratory analysis, active and passive sample techniques and collecting and transporting samples. At Annex F there is further information regarding an assessment as to whether sufficient gas monitoring data have been collected.

No guidance is provided on risk evaluation and characterisation for example where the investigation is used to collect information to aid the design of protective measures to buildings. Guidance on this type of assessment can be found in the documents entitled "Assessing risk posed by hazardous ground gases to buildings" CIRIA C665, "The VOC Handbook" CIRIA Report C682 and the standard BS 8485:2007 Code of Practice for the Characterisation and Remediation from Ground Gas of Affected Developments which is understood will be revised in the near future.

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Revised waste classification

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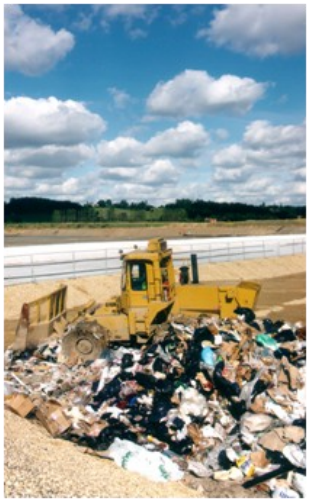

Revised technical guidance on hazardous waste entitled 'Technical Guidance WM2 - Interpretation of the definition and classification of hazardous waste' 3rd Edition dated August 2013 , referred to as "rWM2" has been developed and jointly published by the Environment Agency England, Natural Resources Wales, Scottish Environment Protection Agency and the Northern Ireland Environment Agency to provide guidance on the assessment and classification of hazardous waste based on the revised Waste Framework Directive definition of hazardous waste. There are a number of revisions to the classification of certain wastes in the document which may have implications for the management of waste from contaminated land. For example, the guidance contains a worked example of how to classify as hazardous or non-hazardous waste, soil and other waste materials which includes general construction and demolition wastes and would also be applied to made ground that are contaminated by asbestos fibres and asbestos-containing materials. If the waste contains asbestos fibres that are free and dispersed then the waste will be hazardous if the waste as a whole contains 0.1% or more asbestos. Where the waste contains identifiable pieces of asbestos (i.e. any particle of a size that can be identified as potentially being asbestos by a competent person if examined by the naked eye), then the asbestos containing materials need to be assessed separately and the waste is classified as hazardous if the concentration of asbestos in the piece alone is 0.1%. To assess the percentage of asbestos in soils there will be a greater need to quantify asbestos in the soil samples by laboratory testing. Currently there is neither a standard method for determining the amount of asbestos present in soil or a generic assessment criterion for asbestos in soil or even an agreed minimal risk level. There has been an absence of guidance over many years with the only publication on this matter being the Interdepartmental Committee on the Redevelopment of Contaminated Land (ICRCL) Guidance Note 64/85: Asbestos on Contaminated Sites. There are a number of ongoing initiatives looking into asbestos issues, including the initiative by the Environmental Industries Commission (EIC) and CL:AIRE who have set up the Asbestos in Soil, Made Ground and Construction Materials – Joint Industry Working Group (Asbestos in Soil JIWG). The Environment Agency has agreed with the Asbestos in Soil JIWG that there is a need to provide industry with refined, detailed and practical guidance in the area of waste classification with the intention to develop a more pragmatic approach to regulation which will ultimately form part of the development of the JIWG Industry Code of Practice for Asbestos in Soil, which may be published in 2014.

The guidance also addresses the classification of hazardous waste associated with waste oil and wastes other than waste oils containing and contaminated with oil and coal tar. The classification is not only based on the concentration of hydrocarbons recorded in the waste but taking account of the percentage of marker compounds which may be present based on the percentage of the carcinogens benzene and benzo(a)pyrene (BaP). The use of BaP as a maker compound for hydrocarbons of unknown origin replaces the previous assessment whereby a range of polycyclic aromatic hydrocarbons (PAH) were considered and this may change previous classifications which were based on a number of PAHs. For soil contaminated with diesel range organics where the analysing laboratory reports that the hydrocarbon profile of the oil as a whole is consistent with diesel, or weathered diesel, then the oil should be considered to be diesel. This is important as the threshold for soil contaminated with diesel is 1% (10,000mg/kg), which is higher than thresholds for other hydrocarbons. BaP is also applied as a marker for the classification of road asphalt waste containing coal tar and other construction and demolition wastes containing coal tar and related materials. Where the concentration of BaP is at or above 50mg/kg in the 'black top' material alone (excluding other material), then the amount of coal tar should be considered to be sufficient for the material to be hazardous.

It is evident from this guidance that samples of material will need detailed chemical analysis and competent interpretation of data for waste classification assessment.

SPoCW and SPoSPoCW

SPoSH (significant possibility of significant harm) when considering the risk posed by contaminated soil is now a familiar term. The less catchy acronyms of SPoCW (significant pollution of controlled water) and SPoSPoCW (significant possibility of significant pollution of controlled water) are applied to the assessment of contaminated waters. The Environment Agency is due to issue technical guidance on SPoCW and SPoSPoCW.

The Environment Agency consider that SPoCW being caused where there is:

- Pollution equivalent to environmental damage to surface water and groundwater under the Environmental Damage Regulations.
- Deterioration of the quality of water where additional treatment is necessary to make it safe to drink.
- A breach of a statutory surface water Environmental Quality Standards either directly or indirectly, for example through groundwater as a pathway.
- Input of a substance into groundwater resulting in a significant and sustained upward trend in concentration of contaminants.

The Environment Agency may also consider the following types of pollution to be SPoCW:

- Significant concentrations of hazardous or non-hazardous pollutants in groundwater
- Significant concentrations of priority hazardous substances, priority substances or other specific polluting substances in surface water.

The land may be determined as Contaminated Land under Part 2A if SPoCW is being caused. The land should not be considered Contaminated Land under Part 2A where:

- Substances are already present in controlled waters.
- Substances are entering water in compliance with a discharge authorised under the Environmental Permitting Regulations
- The entry of substances from the land has ceased or that it is not likely that further entry will take place.

The Part2A Statutory Guidance introduced a category based system associated with assessing the possibility of pollution of controlled water. Applying this category system involves assessing when SPoSPoCW is being caused. The EA has prepared guidance as to what constitutes SPoSPoCW in each of the categories:

- Category 1 – there is a strong and compelling case for SPoSPoCW and this is supported through robust science based evidence that SPoCW would occur if no action is taken.
- Category 2 – where there is insufficient evidence for Category 1 although through further evidence and expert opinion the site could be SPoSPoCW, particularly if there is the possibility of serious risk or serious irreversible harmful effects from pollution.
- Category 3 – where the tests for Category 1 or 2 are not met and the pollution is unlikely to require regulatory intervention.
- Category 4 – there is little or no risk of SPoCW, for example there is insufficient evidence of impact on receptors, relevant substances are already present, there is continued entry of substances although at normal levels, entry has ceased, or that it is not likely that further entry will take place.

In deciding if there is SPoCW the risks which need to be considered include the importance of the aquifer, the proximity to potable supplies, source protection zones, the vulnerability of groundwater, the potential for continuity between groundwater and surface water, the presence of bathing waters or waters for recreational use, the ecological protective status of surface water and up gradient chemical data. Assessing the likelihood that harm, or pollution of water which will occur as a result of contaminants in, on or under the land and the scale and seriousness of such harm or pollution if it did occur may need to be assessed through detailed quantitative risk assessment.

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ABOUT MJCA

MJCA provides independent advice on environmental issues to the public and private sectors. Delivering our services to high technical standards and commercial awareness enables us to provide practical, cost effective advice and sustainable solutions. Further information regarding our services can be found on our website www.mjca.co.uk

CONTACT US

Please contact Kevin Eaton for more information on any of the issues raised in this newsletter, or on any other Contaminated Land issues.

National Panel of experts up and running

A National Panel of Experts has been set up to provide independent advice to Local Authorities in making decisions on individual sites as to whether land is or is not contaminated land within the meaning of the Part 2A contaminated land regime. The panel is made up of eleven experts from across the sector including from the regulatory authorities, consultancy, academia and industry.

A Local Authority can submit information about sites being assessed under Part 2A which are viewed as borderline between Category 2 and Category 3 to the National Panel who will consider the information provided in the assessment and provide an opinion to assist the Local Authority in making a judgement. The Local Authority will need to demonstrate they have followed all the procedures set out in the Statutory Guidance before requesting assistance from the panel. The panel has already convened and the first cases have been considered.

The Local Authority will still be responsible for taking the final decision as to whether a site is contaminated land or not under Part 2A and the expert panel will not have any liability associated with the conclusion they make or the subsequent decision of the Local Authority.

The intention is that some of the sites assessed will be written up as anonymised case studies and made available the wider sector. This should assist in the decision making process for other similar cases. The case studies will be published on the CL:AIRE website. It is understood that the panel will review a limited number of cases each year, estimated at approximately 10 to 12 and the panel will operate for a period of only a few years, although this may be reviewed subject to how this process progresses. Further details including frequently asked questions are presented on the CL:AIRE website at the following link.