



Assessment of risks to human health from land contamination

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• CLR7

Assessment of Risks to Human Health from Land Contamination: An Overview of the Development of Soil Guideline Values and Related Research introduces the other reports in the series. It describes the legal framework (including the statutory definition of contaminated land under Part IIA of the Environmental Protection Act 1990), the development and use of Soil Guideline Values, and related research.

• CLR8

Priority Contaminants Report identifies priority contaminants (or families of contaminants). These have been selected on the basis that they are: likely to be present at many sites affected by current or former industrial uses in the UK in sufficient concentrations to cause harm and that they pose a risk to either humans, buildings, water sources or ecosystems. The report also indicates which contaminants are associated with particular industries.

• CLR9

Contaminants in Soils: Collation of Toxicological Data and Intake Values for Human Health sets out the approach used to derive tolerable daily soil intakes and index doses for contaminants, which were subsequently used to determine Soil Guideline Values.

• CLR10

Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms describes the conceptual exposure models for each standard land use for which Soil Guideline Values are derived. It sets out the technical basis for modelling exposure and provides a comprehensive reference to all the default parameters and algorithms used.

The first series of toxicological reports detail the derivation of tolerable daily soil intakes or index doses for the first set of contaminants for which Soil Guideline Values have been determined. The contaminants covered by these reports are arsenic, benzo[a]pyrene, cadmium, chromium, cyanide, lead, nickel, mercury and selenium.

The first series of Soil Guideline Value reports set out the derivation of Soil Guideline Values for the first set of contaminants for which toxicological data has been determined: arsenic, benzo[a]pyrene, cadmium, chromium, cyanide, lead, nickel, mercury and selenium.

• Obtaining the Reports

Copies of the reports can be obtained from the Environment Agency's R&D Dissemination Centre, tel 01793 865000. Further information about the dissemination centre can be viewed on: www.webookshop.com/ea/rdreport

All of the reports are available for free download as Adobe Acrobat PDF's from the DEFRA website: www.defra.gov.uk/environment/landliability/index.htm

• Further information

A home page for CLEA can be found on the Environment Agency's website: www.environment-agency.gov.uk/subjects/landquality. The web pages contain general information on the CLEA package, a list of frequently asked questions, a list of known problems and fixes with the CLEA 2002 software and guidance on how to report any difficulties with the installation/ operation of the software.

The reports should be referred to for further information. If after reading the reports and using the model, you still have queries, these should be referred to the **CLEA helpline number 0121 711 5904** or **CLEA helpline email address: clea.helpline@environment-agency.gov.uk**

Before using the helpline, enquirers are encouraged to check the **CLEA home page at www.environment-agency.gov.uk** by navigating to the contaminated land section in Land Quality.

The helpline cannot answer questions relevant to a specific site.

Floodline
0845 908 1188

24 HRS A DAY,
7 DAYS A WEEK

POLLUTION REPORT LINE
0800 80 70 60



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The Department for Environment, Food and Rural Affairs and the Environment Agency have published a series of reports that, for the first time, provide a scientifically based framework for the assessment of risks to human health from land contamination. By providing a consistent approach to risk assessment, the framework will facilitate the rapid identification of sites that pose a significant risk to human health and help avoid blight on other sites.

The reports, model and associated soil guideline values which make up the framework are valid for use throughout the UK.

• Introduction

The Environment Agency estimates that there are some 300,000 hectares of land in the UK affected to some extent by contamination left by industrial activity. To protect local communities and the environment from risk, local authorities in Britain are required under legislation introduced in 2000 to identify contaminated land and make sure it is dealt with. The Government also wants to bring damaged land back into use and to avoid blight on such sites. Both these objectives involve taking into account the risk to human health and the environment posed by contaminants.

In the 1980s, the UK was one of the first countries to propose 'trigger' concentrations of certain contaminants in soil which, if exceeded, would prompt further investigation. In response to a House of Commons Select Committee on the Environment report, the then Department of the Environment initiated research in 1992 to develop a scientific framework for assessing the risks to human health from land contamination.

This research led to four reports (CLR7, CLR8, CLR9 and CLR10) and the development of the CLEA (contaminated land exposure assessment) model. They provide a coherent,

consistent approach for assessing risks to human health from contaminated soil. This approach can be used to support Part IIA of the Environmental Protection Act 1990 and the Town and Country Planning Act 1990.

Decisions regarding contaminated land and brownfield sites can now be based on sound science, thus removing doubt and potential blight from many sites. Sites that present a 'significant possibility of significant harm' to human health will also be easier to identify.

• Soil Guideline Values

When dealing with potentially contaminated sites, the key question is: does the concentrations of contaminant X pose a significant risk to human health or the environment?

The new Soil Guideline Values will help to answer this question. They are a tool that can be used to assess the risks posed to human health from exposure to soil contamination resulting from land use. They represent 'intervention values', which indicate to an assessor that soil concentrations above this level could pose an unacceptable risk to the health of site users and that further investigation and/or remediation is required. Soil Guideline Values combine both authoritative science and policy judgments.

Soil guideline values have been derived for a range of contaminants for three typical land uses:

- Residential (with and without vegetable growing)
- Allotments
- Industrial/commercial.

Where the soil guideline value is exceeded, this suggests the need for either further investigation or remediation.

Soil Guideline Values can be used in connection with the formal requirements of Part IIA of the Environmental Protection Act 1990. However, they will also be relevant to many situations where the effect of land contamination on human health is an

issue. Soil Guideline Values will help local authorities decide whether land should be classed as contaminated on the grounds that there is a 'significant possibility of significant harm'. They are also expected to be useful in planning applications when judging the need for action to ensure that a new use of land does not pose unacceptable risk to health. Soil Guidelines Values will supersede ICRCCL (Interdepartmental Committee on the Redevelopment of Contaminated Land) values.

• Overview of reports

The four reports (CLR7-10) and the CLEA model have been made available by the Department for Environment, Food and Rural Affairs (DEFRA) and the Environment Agency to support the implementation of Soil Guideline Values. Toxicological and Soil Guideline Value reports for a number of potential contaminants are also being published.

The reports are written for technical professionals who are familiar with the risks posed by land contamination to human health, but who are not necessarily experts in risk assessment. The table overleaf summarises the contents of CLR7-10 and the first set of toxicological and Soil Guideline Value reports. DEFRA and the Environment Agency intend to publish reports for approximately 55 contaminants.

