



Contaminated Land and Planning Process

Phase-II (Intrusive Investigation)

A Phase II investigation, also known as an intrusive investigation, incorporates sampling and analysis of soils and waters as well as possible monitoring of ground gases. The Phase II design is facilitated by the Phase I investigation to allow the works to be as cost effective as possible. The purpose of a Phase II investigation is to quantify the nature and extent of contamination on the site.

Although this leaflet provides details of what is expected of a Phase II investigation, it is not the intention of the Council to provide a prescriptive methodology for any part of a site investigation undertaken within the planning process. The Council welcomes the opportunity to provide comments on site investigation proposals as this can help to address any problems or queries prior to work commencing.

The investigation must be undertaken by an appropriately qualified and trained environmental consultant with full working knowledge British Standards BS 10175:2001 "Investigation of Potentially Contaminated Sites – Code of Practice" and BS 5930:1999 "Code of Practice for Site Investigations" and other appropriate guidance.

As a minimum the Phase II report should include the following:

1. A summary of the Phase I report.
2. Overall objectives of the investigation.
3. Details of the investigation undertaken including:
 - a) The sampling strategy. Investigations can comprise of targeted or non-targeted sampling depending on the site. Information on sampling patterns and frequencies can be found in CLR 4 and BS 10175. The sampling strategy should be clearly explained with full justification of the location of trial pits/boreholes, sampling methodology and depths of sampling to demonstrate a representative characterisation of the site. Composite sampling will not be accepted.
 - b) The sampling suites used with justification including an explanation where different analytical suites are used. Various on site analysis is available, e.g. on site testing kits, flame ionisation detectors, which can be used to provide immediate results whilst on site. These types of equipment can be used for indicative purposes however cannot be accepted in replace of laboratory chemical analysis.

- c) Sampling methodology used, adherence to BS 10175 and BS 5930 and other guidance. The chain of custody documents should also be included within the report as should the laboratory accreditation details etc.
- d) Any problems or unexpected occurrences whilst undertaking the investigation.
4. The analytical results from the sampling should be clearly detailed within the report. The actual laboratory data sheets should also be included.
5. An interpretation of the results is required with a comparison of the on site levels of contaminants made against appropriate screening criteria.
- a) Soils – the Environment Agency and Defra have issued Soil Guideline Values (SGVs) for a number of contaminants. These can be used, where appropriate, as generic screening criteria for the protection of human health. Further values have been developed by LQM and CIEH, which can also be used if applicable. The development of site-specific criteria is recommended and can be generated using various risk assessment models. The justification for the use of a model must be included detailing how the model aligns with UK policy and a comparison of conceptual models. Some models do not take account of all the contaminant pathways identified in the CLR publications and how this has been addressed must be included. Please note that ICRCL values have been withdrawn and are not accepted as screening criteria, even for indicative purposes. Other values such as Kelly Indices, Maryland Values are also not acceptable. Dutch Target Values and USEPA will only be accepted if full justification for their use and a comparison of the conceptual model for the site is compared against the model used to derive the values.
- b) Controlled Waters – Any nearby surface watercourses should be considered and sampled if necessary to determine whether any contamination is impacting upon them. The water beneath the site is also a controlled water and therefore must also be considered and groundwater analysis may be required. Groundwater samples should be taken from boreholes, the analysis of water taken from trial pits does not give an accurate representation of the quality of the groundwater at the site. Screening criteria for controlled waters should initially be made against the most appropriate of the Environmental Quality Standards (EQS) or the Drinking Water Standards (DWS) depending on the nature and location of the site. More detailed site-specific risk assessments can be undertaken using suitable models, e.g. R&D P20, ConSim.
- The Environment Agency is consulted where the pollution of controlled waters is likely. The local Environment Agency office can be contacted on 08708 506506 for further advice on controlled waters.
- c) Leachate – the analysis of soil samples for leachate is also another way of assessing the risk to controlled waters if water sampling has not been possible. The results are then assessed against the most appropriate screening criteria of the EQS or DWS or measured against a site-specific risk assessment.
6. Updated conceptual model. The conceptual model, derived from the Phase I study should be revised taking into account the knowledge gained from the Phase II investigation.

When all the results and risk assessments have been discussed, the conclusions and recommendations should be given to determine whether any further investigation and/or remediation works are required or whether there are no pollutant linkages present and no further work is necessary to ensure the site is suitable for use.

Where the report identifies remediation is required, the next stage will be to submit a Remediation Strategy. This should detail the work to be undertaken to ensure the site is suitable for use and must be approved by the Council prior to any works commencing. Further details on the requirements of a remediation strategy can be obtained from the Council.

Discharge of Conditions

Where contaminated land conditions are applied to a planning consent they will be specific to each phase of an investigation. This then allows the relevant conditions to be discharged as the phases of investigation are satisfactorily completed. The condition relating to remediation and validation will not be discharged until all satisfactory information has been received by the Council including any long term monitoring reports required.

The Council's Contaminated Land Team can be contacted at:
Regulatory Services Tedder Hall Manby Louth LN11 8UP

Tel: 01507601111 Fax: 01507328412

E-mail: Environmental.Protection@e-lindsey.gov.uk