

Blackburn with Darwen Borough Council

Contaminated Land Validation Guidance



Verification, or *Validation* as it is better known, is an important stage of the risk assessment process. It provides assurance that the remediation undertaken on site has been successful in breaking the identified pollutant linkage(s). It also provides assurance that remediation undertaken as part of site works has been implemented, in accordance with the agreed design and amendments. *Validation* also ensures that the requirements of the standard contaminated land condition(s) are met, ultimately allowing discharge of the condition(s).

1.0 General Notes

If remedial works are carried out on site, whether applied to buildings or the site itself, a validation report (see *CLR 11* for report format) will be required. Upon review and approval of this report, discharge of the contaminated land condition(s) can be recommended by the appropriate officer.

Data collection for validation purposes should begin as soon as remedial works start on site. Documentary evidence and data collection from this early stage will expedite verification of the agreed works, and ultimately the discharge of any associated planning conditions.

All remedial works and data collection for validation purposes shall be carried out by an **impartial, suitably qualified and experienced individual(s)**. This individual will be appointed by the applicant to oversee and verify that:

- Remedial work on site is carried out in accordance with the agreed Remediation Strategy;
- Remedial work on site is carried out in line with best practice;
- Data collection is accurate and representative of works implemented.

All remedial works and the data requirements for Validation should be agreed with the Local Authority prior to site works commencing.

It may be more practical, on larger sites for example, to validate blocks or plots as and when they become available. This should still follow the format outlined in this guide, and the phasing should be agreed with the Local Authority prior to commencement on site. **All** validation should be provided for each block. If this approach is adopted, it should be noted that the condition(s) being addressed may not be discharged until the full site has been validated. However, it can be acknowledged that certain blocks have been validated satisfactorily.

References:

Environment Agency/DEFRA Guidance Document (CLR11), *Model Procedures for the Management of Contaminated Land*, pp40-42, 130-147
Environment Agency R & D Publication 66, 2008, *Guidance for the safe development of housing on land affected by contamination*
ODPM Report PPS23, *Planning Policy Statement 23: Planning and Pollution Control*

2.0 Cover systems

When using an engineered cover system in contaminated land remediation, the following areas will require validation:

- Any material used to form a cover system must undergo independent validation testing to confirm its suitability for use on site. This testing must be undertaken by an appropriately qualified individual(s), preferably prior to the cover system being put in place. **Certificates provided by suppliers will not generally be accepted as validation.** This is because the material to which the certificate relates is often not directly used on site, or the certificate is a number of months or years old. See *Imported Material* for more details
- The agreed thickness of a capping layer and/or its engineered components must be verified after installation. This is to ensure that sufficient cover thickness has been applied throughout. The verification can take the form of a topographic survey or visual inspection supported by photographic evidence.

Quality assurance documentation, waste transfer notes and warranties will be required from all contractors involved in the installation of a cover system. Failure to provide satisfactory evidence will automatically require verification through intrusive investigation, or at worst the complete removal of the cover.

References:

Environment Agency/DEFRA Guidance Document (CLR11), *Model Procedures for the Management of Contaminated Land*, pp40-42, 130-147

ODPM Report PPS23, *Planning Policy Statement 23: Planning and pollution control*

3.0 *Imported material*

- All imported material must be subject to validation testing to determine its suitability for on-site use. If the material is obtained from a known 'primary' source, testing should be at a frequency of one sample for every 100m³ of material imported. If the imported material is from an unknown or potentially contaminated source, then testing should be at a frequency of one sample per 50m³ of imported fill.
- Sampling and chemical analysis of material should be undertaken prior to the cover system being installed. Failure to sample and analyse the material before the cover is installed may result in the cover being completely removed. Certificates provided by the supplier will not be accepted as validation.
- Sampling of imported material should adhere to established guidelines for 'composite sampling', while working within the sampling frequencies detailed above. This describes a method of sampling mounded material, so that representative samples are taken from the entire mound, including material buried at its centre. This is to reflect the fact that imported material is sometimes not homogenous and may be subject to local variation.
- Sampling should cover a standard range of contaminants (see *Appendix 1* for list of contaminants), unless material is obtained from a source of known industrial usage, in which case, potential contaminants should be profiled and sampled.
- The volumes of *all* imported material must be noted and catalogued. This data should be verifiable through the appropriate documentation, such as

daily activity logs, consignment notes and other waste/material transfer documentation

- The source of *all* imported material must be determined prior to the material being brought on site. The appropriate validation testing schedule can then be agreed with the Environmental Protection Officer dealing with the case.
- All locations on site where imported material is placed must be noted.

References:

Environment Agency R & D Publication 66, *Guidance for the safe development of housing on land affected by contamination*, pp42-44

British Standards Institution (BS10175), *Investigation of potentially contaminated sites – code of practice*

Environment Agency Guidance Document, *Verification of treatment performance – how sure can you be?*

ODPM Report PPS23, *Planning Policy Statement 23: Planning and pollution control*

Environment Agency/DEFRA Guidance Document (CLR11), *Model Procedures for the Management of Contaminated Land*, pp40-42, 130-147

4.0 *Exported Material & Hotspots*

- Where material is excavated to remove a contamination hot-spot, the removal of the hot-spot must in turn be validated. The validation samples should be taken around the sides and base of the hot-spot excavation. A minimum of five samples, one covering each of the four aspects surrounding the hot-spot, and one at the base of the excavation, are generally required.
- Exported material must be disposed of appropriately. The destination of material removed from site must be verifiable through supporting documentation and should include details of carrier and waste disposal site (consignment note) for material moved off-site.
- The volumes of *all* exported material must be noted and catalogued. This data should be verifiable through the appropriate documentation.
- It should also be noted that any site where exported material could be regarded as ‘waste’, may require a license from the Environment Agency. Any enquiries should be directed to the following telephone number: 0870 8 506 506.

References:

CIRIA Special Publication 105, *Remedial treatment for contaminated land: excavation and disposal*

ODPM Report PPS23, *Planning Policy Statement 23: Planning and pollution control*

5.0 *Gas Monitoring & Gas Protection Measures*

Sites affected by ground gas or that are suspected of being affected must undergo gas monitoring. The pre-emptive installation of gas protection measures *without* gas monitoring is not considered appropriate. Determining the on-site ground gas regime is essential when selecting the appropriate gas protection measures. Whatever level of gas protection is eventually agreed, the following areas are subject to validation:

- The installation of *all* gas protection measures shall be overseen and verified by an independent, suitably qualified and experienced individual. This individual will be appointed by the applicant and will ensure installation is both in line with the agreed remediation statement and the manufacturer’s guidelines/instructions.

- The use of photographic evidence during the installation of gas protection measures is recommended from the outset of installation. Failure to provide satisfactory evidence will result in delays to the discharge of the planning condition(s). In extreme cases, it may not be possible to discharge the condition at all.
- If the characteristic situation represented by the gas regime demands the installation of a gas membrane, documentary evidence will be required to confirm the:
 - *Condition/quality* of the membrane, prior to, during, and after installation.
 - *Suitability* of the membrane for the ground gas conditions present. The Council recommends agreeing membrane specification with the Authority prior to installation. If this is the case, supporting documentation will still be required to verify the agreed membrane specification has been installed.
 - *Sealing* of the membrane has been in line with best practice and/or the manufacturer's guidelines. Quality assurance documentation and warranties will be required from all contractors involved in the installation of gas protection measures or supply of materials used in the installation and sealing of gas protection measures.
- Documentary evidence will be required to confirm adequate gas venting of confined spaces if the characteristic situation represented by the gas regime demands it.
- Documentary evidence will be required to confirm minimum services penetration of floor slabs if the characteristic situation represented by the gas regime demands it.

References:

CIRIA Report C665, *Assessing Risks Posed by Hazardous Ground Gases to Buildings*
BS8485:2007, *Code of Practice for the Characterization and Remediation from Ground Gas in Affected Developments*
Wilson, S., Card, G. & Haines, S. & CIEH, 2008, *The Local Authority Guide to Ground Gas*
CIRIA Report 149, *Protecting developments from methane*
CIRIA Report 151, *Interpreting measurements of gas in the ground*
CIRIA Report 152, *Risk assessment for methane and other gases from the ground*
Environment Agency/Building Research Establishment Report 414, *Protective measures for housing on gas-contaminated land*
British Standards Institution (BS10175), *Investigation of potentially contaminated sites – code of practice*
ODPM Report PPS23, *Planning Policy Statement 23: Planning and pollution control*

6.0 *Post-project monitoring & maintenance*

Any installed remediation/protection measures may be subject to post-project monitoring and maintenance, to ensure that they continue to offer an appropriate level of protection.

The monitoring and/or maintenance schedule must be agreed by the Local Authority prior to its implementation. A reporting schedule should also be agreed, and appropriate milestones set to establish when key decisions will need to be made eg. Is the strategy working? Can the monitoring be stopped?

References:

Environment Agency R & D Publication 66, *Guidance for the safe development of housing on land affected by contamination*, pp42-44, 148-153
ODPM Report PPS23, *Planning Policy Statement 23: Planning and pollution control*

Appendix 1: SGV Standard Suite of Contaminants

A standard suite of common contaminants represent a good starting point for screening materials. This is the standard suite to be used when sampling imported material, where no other relevant information regarding the source of material is available.

The determinants are:

Metals & semi-metals

Total Arsenic	Total Selenium
Total Cadmium	Water Soluble Boron
Total Chromium	Total Copper
Total Lead	Total Nickel
Total Mercury	Total Zinc

Non-metals & inorganic parameters

Total Cyanide	Water Soluble Sulphate
Free Cyanide	Sulphide
Thiocyanate	Sulphur
Total Sulphate	Asbestos

General parameters

pH Value	Organic Matter
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Organic parameters

Speciated Polycyclic Aromatic Hydrocarbons (PAH)
(Including Naphthalene and Benzo(a)pyrene)
Speciated Petroleum Hydrocarbons (TPH)
Total Phenols

References:

CLEA v1.06, <http://www.environment-agency.gov.uk/research/planning/33732.aspx>