

Australian Standard™

**Guide to the investigation and sampling  
of sites with potentially contaminated  
soil**

**Part 1: Non-volatile and semi-volatile  
compounds**

**STANDARDS**  
Australia



This Australian Standard was prepared by Committee EV-009, Sampling and Analysis of Soils and Biota. It was approved on behalf of the Council of Standards Australia on 14 October 2005.  
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The following are represented on Committee EV-009:

Australian Collaborative Land Evaluation Program (ACLEP)  
Australian Contaminated Land Consultants Association, Vic.  
Australian Institute of Medical Scientists  
Australian Society of Soil Science Incorporated  
CSIRO Minerals  
Department of Natural Resources and Mines, Qld  
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**Part 1: Non-volatile and semi-volatile  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EV-009, Sampling and Analysis of Soil and Biota as part of a series on the identification, analytical methods and investigation procedures for the assessment of soil. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian, rather than an Australian/New Zealand Standard.

This Standard supersedes AS 4482.1—1997, *Guide to the sampling and investigation of potentially contaminated soil, Part 1: Non-volatile and semi-volatile compounds*.

The objective of this Standard is to derive the information which may be required to satisfy regulatory authorities, although additional detail may be required in some localities. The Standard does not prescribe levels of contaminants which are considered to pose a risk to human health or the environment. Such levels are prescribed in documents such as the criteria produced by EHC/NEPM on contaminated sites and various regulatory agencies.

The objective of this revision is to reconfirm the Standard with minor changes to clarify certain aspects, update referenced documents and bring the Standard in line with current editorial practices. For the purposes of this Standard, the term 'soil' is taken to also include other solid materials, such as fill, rubble and waste.

There is a widespread community perception of potential health risks associated with contaminated land. These perceived risks may or may not be appropriate, depending on the quality of the information upon which they are based. Unfounded fears may be difficult to dispel whereas 'real' risks associated with the exposure to hazardous materials may not be fully appreciated. Quantitative risk assessments are required in order to clarify these perceptions. Such risk assessments require a sampling strategy representative of the site.

The contamination of land and groundwater by chemicals has been well recognized and acted upon in Europe and North America. Because of the relatively short history and low intensity of industrialization in Australia, the number of contaminated sites is far fewer than for Europe or North America.

This Standard provides guidance for the sampling and investigation process to professionals engaged in these activities. The professionals should consider the relevance of the various components of this Standard to the particular site under investigation and apply them accordingly. Where site specific issues are raised which are beyond the scope of this Standard, for example where radioactive, unexploded ordnance or pathogenic contamination is suspected, then the relevant expertise should be sought and sampling and investigations targeted accordingly.

It is assumed that execution of the provisions of this Standard would be entrusted to appropriately qualified and experienced people. This Standard calls for the use of procedures that may be hazardous or injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Contaminated soils may also have an effect on the surrounding environment. Therefore, investigation of air, biota, surface water and groundwater should be performed where appropriate.

Procedures for sampling of soils for volatile analytes and potential acid sulfate soils are not included in this Standard.

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## STANDARDS AUSTRALIA

### Australian Standard

## Guide to the investigation and sampling of sites with potentially contaminated soil

### Part 1: Non-volatile and semi-volatile compounds

## SECTION 1 SCOPE AND GENERAL

### 1.1 SCOPE

This Standard provides guidance for collecting sufficient and reliable information for the assessment of a site potentially contaminated by non-volatile and semi-volatile compounds. It includes the formulation of data quality objectives and design of a sampling plan to meet the objectives of the investigation.

This Standard is suitable for use in determining compliance with criteria such as those produced by Assessment of Contaminated Sites-National Environment Protection Measure (EHC-NEPM) and various regulatory agencies.

#### NOTES:

- 1 This Standard does not establish any regulatory limits, remediation requirements or make any recommendations about the proposed land use.
- 2 Appendix A gives information on health and safety aspects when collecting soil samples. This appendix is intended only as a general guide to the issues that should be considered in the development of a site specific occupational health and safety plan.
- 3 Statistical methods and tools other than those described in this Standard may be used if they can be proven at least equivalent. Guidance on other statistical approaches can be obtained from the references cited in Appendix D.
- 4 For the purposes of this Standard, the term 'soil' is taken to also include other solid materials, such as fill, rubble and waste material.

### 1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

- |        |  |
|--------|--|
| AS     |  |
| 1726   | Geotechnical site investigations   |
| AS/NZS |  |
| 5667   | Water quality—Sampling   |
| 5667.1 | Part 1: Guidance on the design of sampling program techniques and the preservation and handling of samples |
| ISO    |  |
| 3696   | Water for analytical laboratory use—Specification and test methods   |

### 1.3 DEFINITIONS

For the purposes of this Standard, the definitions below apply.

#### 1.3.1 Background concentrations

The naturally occurring, ambient concentration of substances in the local area of a site.