Soil quality - Conceptual site models for potentially contaminated sites (ISO 21365:2019)

EESTI STANDARDIKESKUS
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NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 21365:2020 sisaldab Euroopa standardi EN ISO 21365:2020 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 21365:2020 consists of the English text of the European standard EN ISO 21365:2020.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 10.06.2020.	Date of Availability of the European standard is 10.06.2020.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Soil quality - Conceptual site models for potentially contaminated sites (ISO 21365:2019)

Qualité du sol - Schémas conceptuels de sites pour les sites potentiellement pollués (ISO 21365:2019)

Bodenbeschaffenheit - Leitfaden zur Erstellung konzeptioneller Standortmodelle für potenziell kontaminierte Standorte (ISO 21365:2019)

This European Standard was approved by CEN on 31 May 2020.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

The text of ISO 21365:2019 has been prepared by Technical Committee ISO/TC 190 "Soil quality" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 21365:2020 by Technical Committee CEN/TC 444 "Environmental characterization of solid matrices" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2020, and conflicting national standards shall be withdrawn at the latest by December 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 21365:2019 has been approved by CEN as EN ISO 21365:2020 without any modification.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 7, *Impact assessment*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document provides a definition of the conceptual site model (CSM) for contaminated sites consistent with other ISO standards related to contaminated land. It refers to ISO accepted terminology and generally accepted understanding of a CSM. Links with the ISO 18400 series of standards (*Soil quality — Sampling*) are made. It is applicable to the management of potentially contaminated sites, sites that are known to be contaminated, and also to land with naturally elevated concentrations of potentially harmful substances.

It provides general guidance on the application of CSMs, how they are developed and how they can evolve, with respect to all media, for example, air, surface water, sediments, soil, groundwater, soil gas, biota, subsoil, including buildings and other artefacts.

The CSM is a synthesis of all relevant information about a potentially contaminated site with interpretation as necessary and recognition of uncertainties. The description relies on the concept, of "source-migration pathway-receptor linkages" (sometimes termed « contaminant linkages ») that are, or might be, present.

The investigation of land potentially affected by contamination is usually performed using observations and measurements made on-site as well as by taking samples for laboratory analysis and testing. Soil and groundwater characteristics include a wide span of features, such as chemical and mineralogical composition, soil texture, the concentrations, amounts and distribution of contaminants and soil components. For practical and economic reasons, these investigations cannot cover the total volume of interest, and the on-site measurements and especially the sampling have to be limited to certain points or small areas/volumes.

Spatially limited investigations will give the best possible information if they are be planned thoroughly. The questions: "what are we looking for, and what can we expect?" are essential for developing an investigation programme that is efficient and fit for purpose. The best way to start the planning of the investigation is to formulate a CSM, based on a thorough preliminary investigation (desk study and site reconnaissance in accordance with ISO 18400-202) prior to any intrusive investigation.

Therefore, a CSM is a synthesis of information about the site together with some interpretation, assumptions, and hypotheses. By testing the assumptions and hypotheses, intrusive investigations can concentrate on the essential questions and data gaps, and can be planned and carried out more efficiently. Depending on the results of the intrusive investigation, the CSM can be developed further. It can become more detailed, more reliable, and often also modified or corrected, and step by step can lose its conceptual character, although remaining a model.

In the context of potentially contaminated land, a CSM is a tool that can be developed for the planning of an investigation, for undertaking a risk assessment, and for planning remediation and aftercare of a site. It can also be used for construction or other engineering works that are planned for after remediation. A CSM can be used when conducting environmental audits and "due diligence" exercises. The degree of detail needed for the CSM can depend on the objectives of any of these tasks, and the nature, current use and possible development of the site.

When preparing a CSM the terms that are being used should be carefully defined because terms might not be understood to have the same meaning by people with different backgrounds and experience. In addition, CSMs are intended to be of use to those without a technical background.

NOTE This document follows the established convention for documents published by ISO Technical Committee 190 (TC 190) in distinguishing between "contaminant" ("substance or agent present in an environmental medium as a result of human activity – see 3.2 in this document) and pollutant ("substance or agent present in the soil (or groundwater) which, due to its properties, amount or concentration, causes adverse impacts on soil functions" - see ISO 11074:2015, 3.4.18). Hence, "contamination" and "pollution" are not considered to be the same thing. However, it is recognised that this distinction is not always made at "official" level in all jurisdictions. Even in those jurisdictions where it is recognised, it might be for some purposes but not others and the definitions of "contamination" and "pollution" used in legislation and regulations for different purposes can differ. In addition, the use of the terms is not necessarily consistent between and even within guidance documents produced by government and professional bodies.

Soil quality — Conceptual site models for potentially contaminated sites

1 Scope

This document provides guidance on developing and using conceptual site models (CSMs) through the various phases of investigation, remediation (if required), and any subsequent construction or engineering works.

It describes what CSMs are, what they are used for and what their constituents are. It stresses the need for an iterative and dynamic approach to CSM development.

This document is intended to be used by all those involved in developing CSMs and by those who rely on using them such as regulators, landowners, developers, and the public (and other relevant parties). Ideally, this includes representatives from all phases of the investigative and remedial processes, for example, preliminary assessment, detailed investigation, baseline human health and environmental risk assessments, and feasibility study, and, any subsequent construction or engineering work.

NOTE 1 This document is applicable whenever the presence of "potentially harmful" or "hazardous" substances are present irrespective of whether they are naturally occurring or present due to human activity (i.e. are "contaminants").

NOTE 2 Although most of the principles described for developing CSMs in this document can apply to other domains, such as groundwater resources management, the present document is specifically written for the management of potentially contaminated sites or known contaminated sites.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11074, *Soil quality — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11074 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
anthropogenic ground
deposits which have accumulated through human activity

[SOURCE: ISO 11074:2015/DAmd 1:2019[1)]]

1) Under preparation. Stage at the time of publication: ISO 11074:2015/DAmd 1:2019.