



Standard Guide for Data and Information Options for Conducting an Ecological Risk Assessment at Contaminated Sites¹

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1. Scope

1.1 This guide is intended to assist remedial project teams, specifically ecological risk assessors, in identifying data and information options that may be used to perform a screening or complex ecological risk assessment (ERA) at a contaminated site.

1.2 The identification of data and information options for human health risk assessment is outside the scope of this guide.

1.3 This guide is intended to provide a list for identifying data and information options and does not recommend a specific course of action for ERA activities.

1.4 This guide addresses data and information options for the ecological risk assessment, not verification or long-term monitoring studies.

1.5 This guide lists many of the common data and information options for ERA, but there may be others relevant for any particular site.

1.6 This guide considers one component of an ERA, that is, identification of data and information options. Other ASTM guides have been developed, for example, Guides E 1689) and E 1848, and are being developed to cover other components of the risk assessment process.

1.7 This guide does not provide information on how to perform any of the analytical procedures used to perform a risk assessment once data collection options are defined.

2. Referenced Documents

2.1 ASTM Standards:

D 5730 Guide for Site Characterization for Environmental Purposes with Emphasis on Soil, Rock, the Vadose Zone and Ground Water²

E 1391 Guide for Collection, Storage, Characterization, and Manipulation of Sediments for Toxicological Testing³

E 1525 Guide for Designing Biological Tests with Sediments³

E 1689 Guide for Developing Conceptual Site Models for

Contaminated Sites³

E 1848 Guide for Selecting and Using Ecological Endpoints for Contaminated Sites³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *assessment endpoint, n*—an explicit expression of the environmental value to be protected.

3.1.2 *chemical stressor, n*—a chemical, chemical mixture, or radionuclide present in an environmental medium that is known or suspected to induce an adverse biological, toxicological, or ecological response in an exposed ecological receptor.

3.1.3 *complex ecological risk assessment, n*—an ecological risk assessment completed using quantitative methods, which relies on site-specific data and may include toxicity testing, field biological surveys, and probabilistic analysis.

3.1.4 *data quality objective, n*—a specification of the amount and quality of data required to adequately complete the risk assessment such that a risk management decision can be made.

3.1.5 *ecological receptor, n*—ecosystems, communities, populations, and individual organisms (except humans), that can be exposed directly or indirectly to site stressors.

3.1.6 *measurement endpoint, n*—a measurable response to a stressor that is quantifiably related to the valued characteristic chosen as the assessment endpoint.

3.1.7 *non-chemical stressor, n*—a biological agent, physical disturbance, condition, or nonchemical characteristic of a waste material, substrate, or source associated with a contaminated site and corrective actions that is known or suspected to interfere with the normal functioning of an ecological receptor.

3.1.8 *screening ecological risk assessment, n*—an ecological risk assessment completed using qualitative or simple quantitative methods, which relies on literature information and is unlikely to include toxicity testing, field biological surveys, or probabilistic analysis.

3.1.9 *site, n*—the terms “site,” “on-site,” and “off-site,” have not been defined in this guide. They will need to be defined on a case-by-case basis. They could be defined by regulatory needs, natural boundaries, or property boundaries.

4. Summary of Guide

4.1 This guide provides a series of lists of data and

¹ Precision and Bias This guide is under the jurisdiction of ASTM Committee E-47 on Biological Effects and Environmental Fate and is the direct responsibility of Subcommittee E 47.13 on Assessment of Risk to Human Health and the Environment from Contaminated Sites.

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² Annual Book of ASTM Standards, Vol 04.09.

³ Annual Book of ASTM Standards, Vol 11.05.