



Designation: E 2115 – 00

Standard Guide for Conducting Lead Hazard Assessments of Residential Housing and Other Properties Frequented by Children¹

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1. Scope

1.1 This guide describes how to conduct, document and report findings of a lead hazard assessment in residential dwellings and other buildings and related areas known to contain, or are suspected to contain, lead hazards. Lead hazard assessments are intended to be conducted by certified risk assessors. This guide is applicable for use in either occupied or unoccupied properties. The use of this guide to produce accurate results is dependent on the training, experience, and knowledge of the risk assessor conducting the lead hazard assessment. Use of the procedures in this guide, when supplemented by the evaluation and recommendation process that determines action plans for controlling assessed lead hazards, provides for the conduct of a lead risk assessment (see Note 1).

NOTE 1—A lead risk assessment, as defined by Federal regulation (40CFR745.227(d)), includes, as part of the reporting process, a description of interim controls and abatement options for each identified lead hazard and a suggested prioritization for addressing each hazard. This guide provides for the identification of lead hazards and the prioritization for addressing each hazard guidance on the determination of appropriate interim controls and abatement options for each identified lead hazard is beyond the scope of this guide and is included in a companion standard. Guidance on the determination of appropriate interim controls and abatement options for each identified lead hazard is beyond the scope of this guide and is the subject of a standard under development by E06.23.

1.2 This guide is insufficient as the sole means to determine causes of lead poisoning in young children having an elevated blood lead level (EBL). In these cases, procedures including investigation of the total living environment of the child and a pediatric medical evaluation is needed. Reference should be made to *Preventing Childhood Lead Poisoning* (CDC, 1991), the *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* (HUD, 1997), and *Screening Young Children for Lead Poisoning* (CDC, 1997).

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the*

responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

1.5 This guide contains notes, which are explanatory, and are not part of the mandatory requirements of this guide.

2. Referenced Documents

2.1 Wherever the requirements of a reference document or applicable regulation differ from the requirements presented in this guide the more stringent of the two shall be used.

2.2 ASTM Standards:

E 1583 Practice for Evaluating Laboratories Engaged in the Determination of Lead in Paint, Dust, Airborne Particulate, and Soil in and Around Buildings and Related Structures²

E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures³

E 1613 Test Method for Analysis of Digested Samples for Lead by Inductively Coupled Plasma Atomic Emission Spectrometry (ICP/AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS) Techniques³

E 1644 Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead by Atomic Spectrometry³

E 1645 Practice for Preparation of Dried Paint Samples for Subsequent Lead Analysis by Atomic Spectrometry³

E 1726 Practice for The Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry³

E 1727 Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques³

E 1728 Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques³

E 1729 Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques³

E 1792 Specification for Wipe Sampling Materials for Lead in Surface Dust³

¹ This guide is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.23 on Abatement of Hazards from Lead in Buildings and Related Structures.

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² Discontinued. See 1997 Annual Book of ASTM Standards, Vol . . .

³ Annual Book of ASTM Standards, Vol 04.11.



E 1864 Practice for Evaluating Quality Systems of Organizations Engaged in Conducting Facility and Hazard Assessments to Determine the Presence and Extent of Lead in Paint, Dust, Airborne Particulate, and Soil in Buildings and Related Structures³

E 1973 Practice for Collection of Surface Dust by Air Sampling Pump Vacuum Technique for Subsequent Lead Determination³

E 1979 Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead³

E 2051 Practice for Determination of Lead in Paint, Settled Dust, Soil, and Air Particulate by Field-Portable Electroanalysis⁴

E 2119 Practice for Quality Systems for Conducting In Situ Measurements of Lead Content in Paint or Other Coatings Using Field-Portable X-Ray Fluorescence (XRF) Devices³

2.3 CDC Document:

CDC *Preventing Lead Poisoning in Young Children*, Centers for Disease Control and Prevention Atlanta, CDC October, 1991.

CDC *Screening Young Children for Lead Poisoning*, Centers for Disease Control and Prevention Atlanta CDC, 1997.

2.4 HUD Document:

HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*,

2.5 EPA Documents:

EPA *Risk Assessment Guidance*, Federal Register, Vol 60, 47248, September 11, 1995.

EPA *Lead-Based Paint Poisoning Prevention in Certain Residential Structures* 40 CFR Part 745.

3. Terminology

3.1 Definitions:

3.1.1 For definition of terms used in this guide see Terminology E 1605.

3.1.2 *assessed unit, n*—a dwelling or property that has been the subject of the investigation.

3.1.3 *lead activity summary, n*—a document that summarizes lead evaluation data and management activities on a specific structure or property presented in a single page format.

3.1.3.1 *Discussion*—This practice will provide a means of communicating summarized results of lead evaluation and management activities to occupants and others of a residential dwelling.

3.1.4 *lead hazard assessment, n*—an investigation of an assessed unit conducted to determine and report the location, type, severity of lead hazards which are accessible to children.

4. Summary of Guide

4.1 This guide provides procedures for gathering information, conducting a lead hazard assessment, and documenting and reporting the findings of the lead hazard assessment.

4.2 This guide discusses the conduct of a lead hazard assessment, in a stepwise progression, using a systematic

application of the three general tasks listed below. Simultaneous conduct of several activities within these tasks generally is performed using a looping feedback structure shown in Fig. 1.

4.2.1 *Task 1*—Pre-site visit activities developing work specifications.

4.2.2 *Task 2*—On-site activities conducting field work.

4.2.3 *Task 3*—Post-site visit activities data reporting.

5. Significance and Use

5.1 This guide is intended to help prevent lead poisoning of children by providing standardized procedures to be used by a lead risk assessor when gathering and reporting findings and information needed to develop and recommend lead hazard control options (see Note 2).

NOTE 2—Development of lead hazard control recommendations for identified lead hazards, which is an important part of a risk assessment, is outside the scope of this guide and is contained in a separate document.

5.2 This guide is intended to be followed in accordance with all applicable local, state, and federal regulations.

5.3 A lead hazard is conducted as part of a lead risk assessment to determine and report the location, type, and severity of lead hazards in buildings and associated property surroundings that are accessible to children. The local risk assessment uses the findings from a lead hazard assessment in developing a report providing appropriate, cost effective lead hazard control recommendation options to the client (see Note 1).

5.4 This guide does not include the formal investigation of personal items that may contribute to lead hazards, such as toys, dishes, hobby materials, etc.; however, the risk assessor should report such hazards if they are identified during the conduct of a lead hazard assessment.

5.5 Lead hazard assessment findings only represent the condition of the property at the time the assessment is performed. Lead hazards identified during a lead hazard assessment often are related to the condition of the property. The presence of lead hazards can change over time as a result of property improvement or deterioration, significant changes in property use, and other factors.

5.6 Lead risk assessors must be certified for the conduct of lead-based paint activities under the appropriate state or federal program (see 2.6).

5.7 In addition to direct use by a lead risk assessor, this guide is applicable for assisting professionals, homeowners, owners or occupants of rental property, lenders, insurers and others with a property interest in determining the presence of lead hazards (see Note 3). This guide also is applicable for assisting designers of lead hazard mitigation projects to target their resources toward lead hazard controls most likely to result in the prevention of lead poisoning in young children.

NOTE 3—Whenever lead is present in a building in any form, the term “lead-free” should never be used to describe the absence of lead hazards because testing methodologies are not designed to measure freedom from any level of lead. Small amounts of lead present in substrates or on coatings below an applicable Federal, state, or local action level may become a hazard if the components are subjected to conditions or activities that create lead containing dust. Changes in property conditions and changes in children’s habits related to the frequency of hand-to-mouth

⁴ Discontinued 1999; Replaced by E 2051.

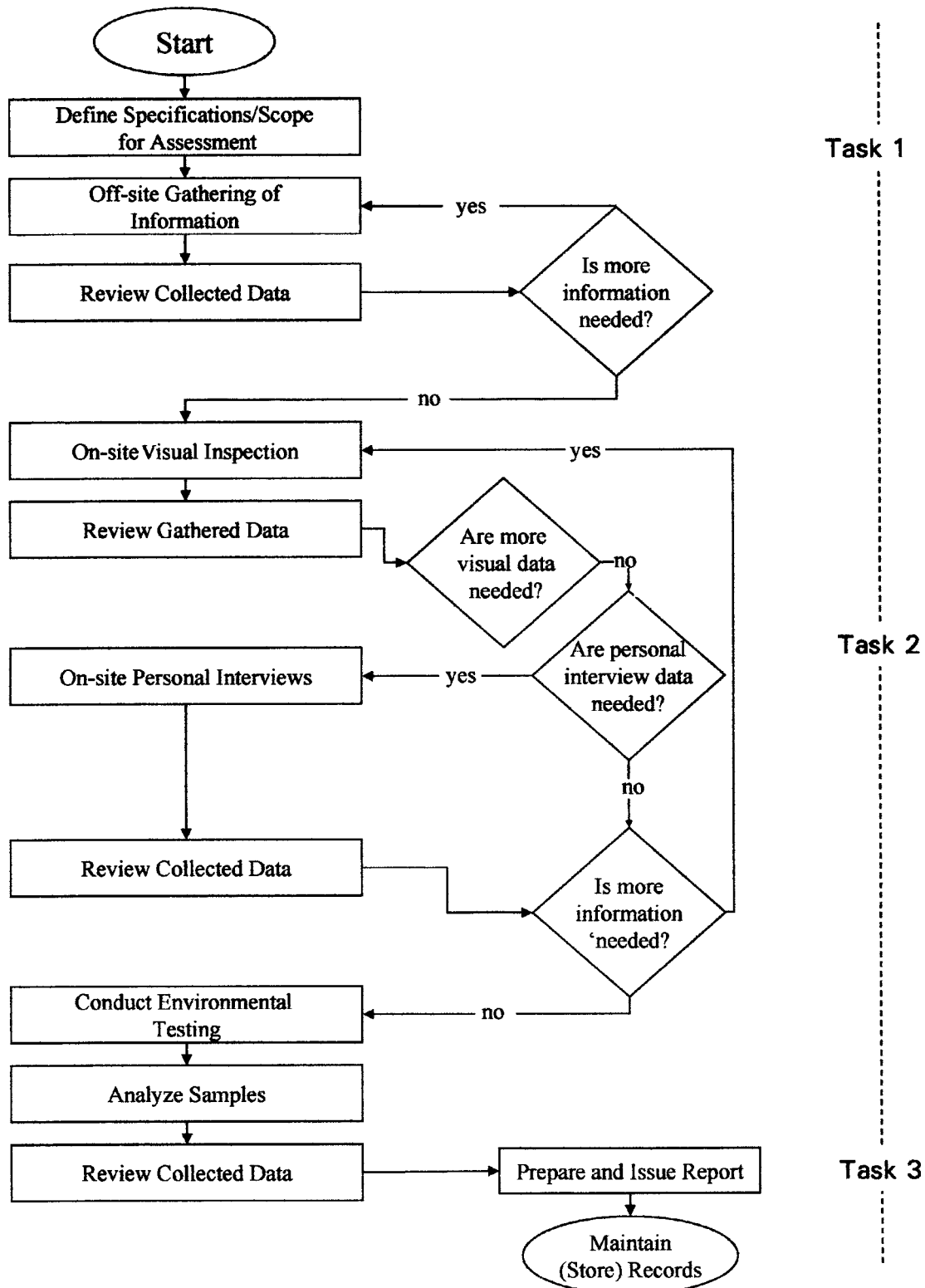


FIG. 1 Example Work Flow for Conducting a Lead Hazard Assessment



activity, which vary over time, further contribute to this inability to provide absolute assurance that a child will not become lead poisoned in the future.

5.8 The tasks and procedures outlined in this guide are based on developing technologies; therefore, this guide shall be reviewed periodically and amended to incorporate new information to ensure its continuing suitability in minimizing lead poisoning of children.

6. Experience Requirements for a Risk Assessor

6.1 Lead hazard assessments shall be carried out by qualified risk assessors as required through certification or licensing under appropriate federal, state, or local regulations.

7. Conducting a Lead Hazard Assessment

7.1 Lead hazard assessments are conducted using a systematic approach consisting of a series of activities within three general tasks. Although several of the activities within a task may be conducted simultaneously, they are discussed in a stepwise progression under each task labeled (A) through (K).

- Task 1—Pre-site Visit Activities: Developing Work Specifications:
- (A) Create a specifications document and define scope.
 - (B) Gather information and review procedures.
 - (C) Review collected data.
- Task 2—On-Site Visit Activities: Conducting Field Work:
- (D) Conduct visual inspection.
 - (E) Review collected data.
 - (F) Conduct personal interviews.
 - (G) Review collected data.
 - (H) Conduct environmental testing.
- Task 3—Post-Site Visit Activities: Data Reporting:
- (I) Analyze collected samples
 - (J) Review collected data
 - (K) Prepare and issue a lead hazard findings report (see Note 4).

NOTE 4—A complete risk assessment report to a client also should contain identification of acceptable abatement and control strategies for controlling any identified lead hazards. Guidance on how to provide this information is not part of this guide.

7.2 Task 1—Pre-site Visit Activities: Developing Work Specifications—The first task is to develop work specifications by which the investigation is conducted as listed in (A) through (C) as follows:

7.2.1 (A) Create a Specifications Document and Define Scope—For most lead hazard assessments performed for compensation, this guide serves to define the scope of work for use in a contract between the risk assessor and the client (see Note 5). Otherwise, it serves to define the scope of work for use in a project plan, for example, for staff work assignments. This guide, at a minimum, shall include the following items:

NOTE 5—In most cases, this guide will be generated from boilerplate materials that are modified as needed to fit the conditions and requirements of the specific site being assessed, as agreed upon by the client and assessor. This guide may or may not include approvals by the client or contingencies regarding the successful receipt of signed releases for information gathering from the client and occupants.

7.2.1.1 Scope—This is a description of the work to be performed as described in this guide. It includes a description of the minimum numbers and types of environmental tests to be performed during the assessment.

7.2.1.2 Cost—If the lead hazard assessment is performed for compensation, the cost for conducting the work shall be identified.

7.2.1.3 Personnel Qualifications—Qualifications of all personnel to be involved in the lead hazard assessment shall be identified. At a minimum, a summary of the relevant certifications, licenses, training, and experience for persons participating in the conduct of the lead hazard assessment shall be identified. This may be done generically and specific individuals need not be named.

7.2.1.4 Regulatory Requirements—A summary of the regulatory requirements for the area and structures being assessed including identification of the regulatory agencies having jurisdiction over the assessment activity, or subsequent hazard mitigation, or both, shall be included. Specific assessment requirements imposed by these regulatory agencies shall be identified and performed. Current regulatory levels of concern shall be specified.

7.2.1.5 Laboratory Qualifications—Qualifications for all laboratories to be involved in the assessment shall be identified. Laboratories selected for use shall hold all accreditations, certifications, and recognitions needed to conduct lead testing services as governed by regulatory agencies having jurisdiction over such work. At a minimum, the selected laboratory shall be recognized by the U.S. Environmental Protection Agency (EPA) National Lead Laboratory Accreditation Program (NLLAP).

7.2.2 (B) Gather Information and Review Procedures—Prior to traveling to the site where the lead hazard assessment is to be conducted, a number of activities shall be performed to plan for the on-site visit of the property. These activities include the following:

7.2.2.1 Acquire whatever signed permission releases are needed to enter the property to conduct the lead hazard assessment (see Note 6).

NOTE 6—Permission releases may include any of the following items:
Permission to enter the property;

Permission to acquire and review available property construction records, inspection records, previous lead hazard assessment or risk assessment records, and any other records appropriate to the conduct of the lead hazard assessment;

Permission to conduct dust sampling, soil sampling, in situ paint testing, water sampling, and any intrusive paint chip sampling deemed necessary or appropriate; and,

Permission to conduct interviews of the client and their personnel, as appropriate, and of occupants.

7.2.2.2 Acquire background information as appropriate from the client, their personnel, or the occupants. If they are available, specific background items shall include, but not be limited to, the following:

(a) Property construction or structural records including construction date;

(b) Existing floor plans;

(c) Past property usage records;

(d) Home inspection records;

(e) Any appropriate existing environmental testing records such as a lead hazard or risk assessment, lead-based paint inspection, or other lead or lead hazard testing;

(f) A statement as to the current general use of the structure.