Designation: E 2052 – 99

Standard Guide for Evaluation, Management, and Control of Lead Hazards in Facilities[1]

This standard is issued under the fixed designation E 2052; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide provides detailed guidance for use by owners and property managers in developing and implementing a lead hazard management program in facilities that are likely to be occupied or visited by children under six or by pregnant women by providing an organized approach to using ASTM and other standards. Its purpose is to protect occupants, visitors, staff, other workers, and the environment from lead hazards in these facilities.

1.1.1 Fig. 1 provides an overview of the major lead hazard identification and management program elements.

1.1.2 Fig. 2 provides an outline of the lead hazard identification and management program process.

1.2 *Limitations*:

1.2.1 This provisional guide does not apply to facilities that are not likely to be occupied or visited by children under six, or by pregnant women. It does not apply to occupational exposures other than those resulting from maintenance, cleaning, lead hazard control work, and other renovation and repair work that generates lead hazards.

1.2.2 This guide is based on federal and national standards and guidelines that may be different from applicable state and local regulations. It does not, however, comprehensively address OSHA, EPA, or DOT requirements. It may not protect all users, or occupants, visitors, staff, other workers, and the environment affected by their facilities from lead hazards. Users must comply with applicable laws and regulations and modify the guidance provided by this guide accordingly. The user is advised to adopt the most stringent version of each requirement among federal, state, and local regulations.

1.3 Execution of work discussed or recommended in this guide may cause exposure to construction safety and health hazards, to health hazards from lead in paint, dust, and bare soil, and to health hazards from products and methods associated with lead hazard control. *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.*

2. Referenced Documents

2.1 These documents are subject to periodic updating and other revisions. It is the responsibility of the user to ensure that the version of each document used is current.

2.2 *ASTM Standards:*

D 3559 Test Method for Lead in Water[2]

D 4309 Practice for Sample Digestion Using Closed Vessel Microwave Heating Technique for Determination of Total Metals in Water[2]

D 4840 Guide for Sampling Chain-of-Custody Procedures[2]

D 5438 Collection of Floor Dust for Chemical Analysis[3]

D 5463 Guide for Use of Test Kits to Measure Inorganic Constituents in Water[2]

E 631 Terminology of Building Constructions[4]

E 1480 Terminology of Facility Management (Building-Related)[4]

E 1553 Practice for Collection of Airborne Particulate Lead During Abatement and Construction Activities[4]

E 1583 Practice for Evaluating Laboratories Engaged in the Determination of Lead in Paint, Dust, Airborne Particulates, and Soil Taken From and Around Buildings and Related Structures[4]

E 1605 Terminology Relating to Abatement of Hazards from Lead-Based Paint in Buildings and Related Structures[4]

E 1613 Test Method for the 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) Techniques[4]

E 1644 Practice for Hot Plate Digestion of Dust Wipe Samples for the Determination of Lead by Atomic Spectrometry[4]

E 1645 Practice for the Preparation of Dried Paint Samples for Subsequent Lead Analysis by Atomic Spectrometry[4]

[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.

Current edition approved Dec. 10, 1999. Published March 2000.

[2] *Annual Book of ASTM Standards*, Vol 11.01.

[3] *Annual Book of ASTM Standards*, Vol 11.03.

[4] *Annual Book of ASTM Standards*, Vol 04.11.

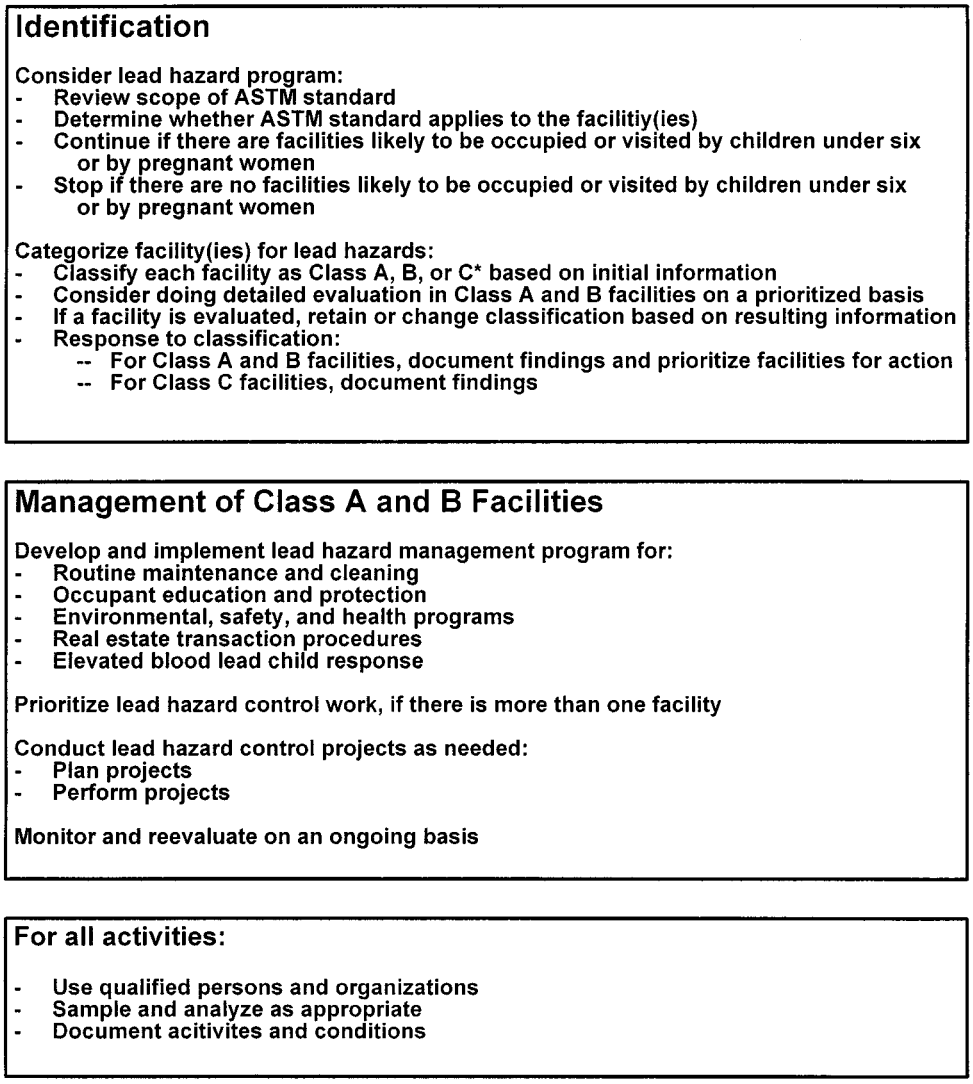


FIG. 1 Lead Hazard Identification and Management Program Overview

E 1726 Practice for Sample Digestion of Soils for the Determination of Lead by Atomic Spectrometry[4]

E 1727 Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques[4]

E 1728 Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques[4]

E 1729 Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques[4]

E 1741 Practice for Preparation of Airborne Particulate Lead Samples Collected During Abatement and Construction Activities for Subsequent Analysis by Atomic Spectrometry[4]

E 1753 Practice for the Use of Qualitative Chemical Spot Test Kits for The Detection of Lead in Dry Paint Films[4]

E 1775 Guide for Evaluating the Performance of On-Site Extraction and Field-Portable Electrochemical or Spectrophotometric Analysis for Lead[4]

E 1792 Specification for Wipe Sampling Materials for Lead in Surface Dust[4]

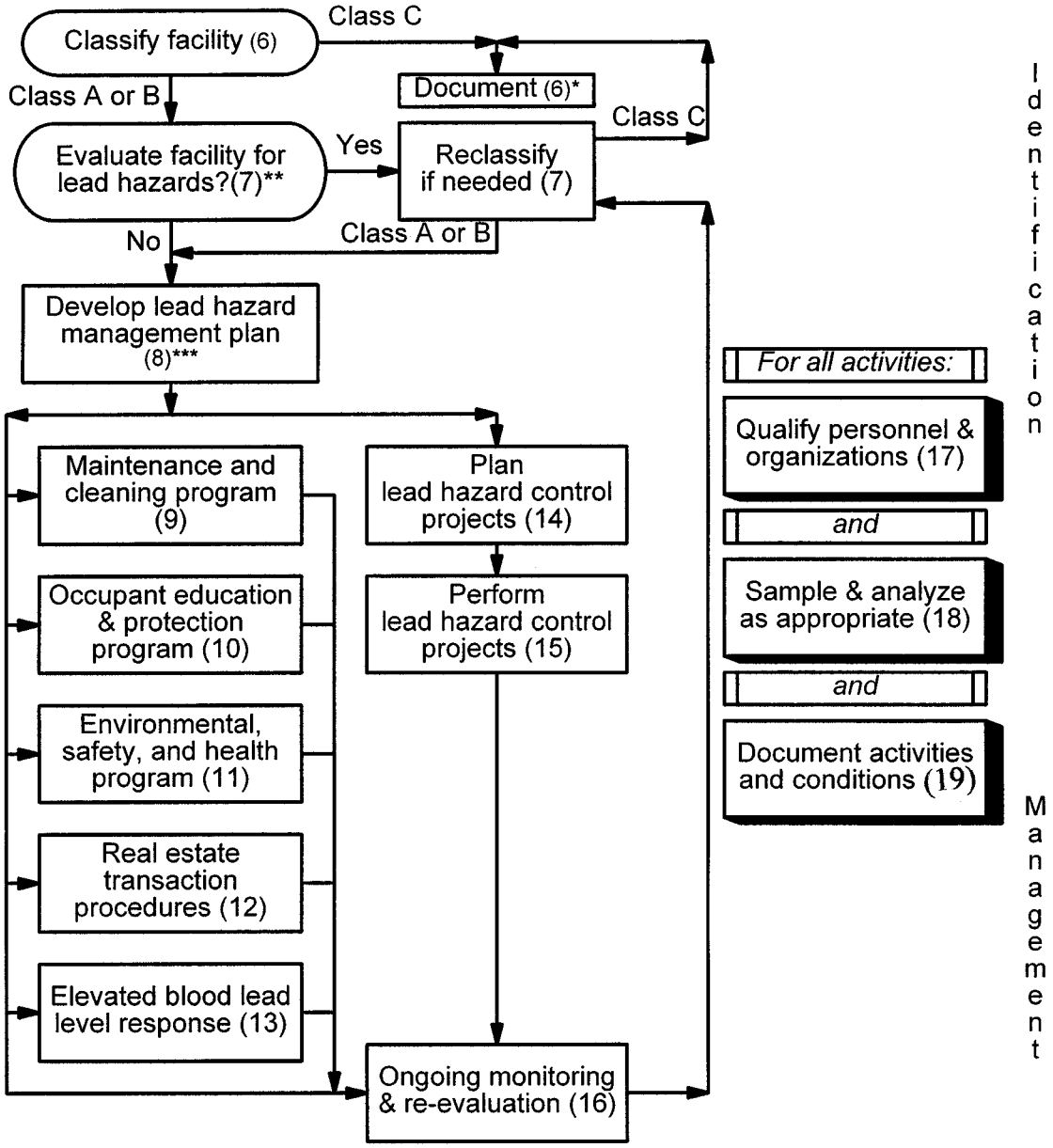
E 1795 Specification for Liquid Coating Encapsulation Products for Leaded Paint in Buildings[4]

E 1796 Guide for Selection and Use of Liquid Coating Encapsulation Products for Leaded Paint in Buildings[4]

E 1797 Specification for Reinforced Liquid Coating Encapsulation Products for Leaded Paint in Buildings[4]

E 1828 Guide for Evaluating the Performance Characteristics of Qualitative Chemical Spot Test Kits for Lead in Paint[4]

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 and Around



* Corresponding section numbers are in parentheses. See Section 6 and Figure 3 for facility classification procedure: In Class A facilities, leaded paint or lead hazards are probable. In Class B, leaded paint or lead hazards are less probable. In Class C, leaded paint and lead hazards are not likely.

** While facilities can be classified without evaluation for the presence, concentration and condition of leaded materials, evaluations generally lower time, costs and liability by helping managers increase confidence in their lead programs and avoid unnecessary control work. Some rules require some evaluation of federally-owned or -assisted housing

*** Class A facilities tend to have broader and more stringent lead hazard management plans and programs than do Class B facilities, because of Class B's generally fewer potential or actual lead hazards, and generally lower risk when they do occur.

FIG. 2 Lead Hazard Identification and Management Program

Buildings and Related Structures[4]

E 1908 Standard Guide for Sample Selection of Debris waste from a Building Renovation or Lead Abatement Protect for Toxicity Characteristic Leaching Procedure (TCLP) testing for Leachable Lead (Pb)[4]

E 1973 Provisional Practice for the Collection of Surface Dust by Air Sampling Pump Vacuum Technique for Subsequent Lead Determination[4]

E 1979 Standard Practice for Ultrasonic Extraction of Paint, Dust, Soil, and Air Samples for Subsequent Determination of Lead[4]

E 2051 Practice for The Determination of Lead in Paint, Settled Dust, Soil and Air Particulate by Field-Portable Electroanalysis[4]

2.3 *U.S. Laws and Regulations:*

24 CFR (Code of Federal Regulations) Part 35, Subpart H, Disclosure of Known Lead-Based Paint and/or Lead-Based Paint Hazards upon Sale or Lease of Residential Property (HUD regulation)[5]

24 CFR 35, HUD Lead-Based Paint Poisoning Prevention in Certain Residential Structures[5]

29 CFR 1910.1025, OSHA Lead (Regulation for General Industry)[5]

29 CFR 1910.1200, OSHA Hazard Communication (Regulation for General Industry)[5]

29 CFR 1926, OSHA Regulations for Construction (29 CFR 1926.62, OSHA Lead and 29 CFR 1926.59, OSHA Hazard Communication)[5]

40 CFR 141, EPA National Primary Drinking Water Regulations[5]

40 CFR 261, EPA Identification and Listing of Hazardous Waste[5]

40 CFR 745, EPA Lead-Based Paint Poisoning Prevention in Certain Residential Structures[5]

42 U. S. C., Chapter 63 (Sections 4821-4846), Lead-Based Paint Poisoning Prevention[5]

42 U. S. C., Chapter 63A (Sections 4851-4854), Residential Lead-Based Paint Hazard Reduction[5]

49 CFR 171-177, DOT Hazardous Materials Regulations[5]

Public Law 99-339, Safe Drinking Water Act Amendments of 1986, Act of June 19, 1986[5]

Public Law 100-572, Lead Contamination Control Act of 1988, Oct. 31, 1988[5]

Public Law 102-550, Title X of the Housing and Community Development Act of 1992, Oct. 28, 1992[5]

2.4 *Governmental Agency Guidance:*

EPA Guidance on Identification of Lead-Based Paint Hazards, Federal Register (FR) v. 60, pp. 47247-47257, 11 Sept 1995[6]

Guidance on the Lead-Based Paint Disclosure Rule, HUD, EPA, ongoing series. ("Disclosure Rule Guidance")[6]

Guide Specification for Military Construction, CEGS 02090, Lead Based Paint (LBP) Abatement and Disposal, U.S. Army Corps of Engineers, April 1994. ("CoE Specifications")[7]

Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, U.S. Department of Housing and Urban Development (HUD), June 1995. ("HUD Guidelines")[7]

Inspection and Compliance Procedures for Lead in Construction. OSHA Instruction CPL 2-2.58[6]

Lead Based Paint (LBP) Lead Hazard Containment Detail Setup Drawings, U.S. Army Corps of Engineers, April 1994. ("CoE Containment")[7]

National Lead Laboratory Accreditation Program (NLLAP) List. U.S. Environmental Protection Agency (EPA), monthly. ("NLLAP List")[6]

Preventing Lead Poisoning In Young Children: A Statement by the Centers for Disease Control-October 1991. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control. ("CDC Statement")[6]

Protect Your Family From Lead in Your Home, EPA, HUD and CPSC, EPA 747-R-94-001, May 1995. ("EPA/HUD/CPSC Information Pamphlet")[6]

Reducing Lead Hazards When Remodeling Your Home, EPA, EPA 747-R-94-002, April 1994. ("EPA Renovation Pamphlet")[6]

Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials. U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, November 1997. ("CDC Guidance")[6]

Putting the Pieces Together: Controlling Lead Hazards in the Nation's Housing. Report of Lead-Based Paint Hazard Reduction and Financing Task Force, HUD, 1995. ("HUD Task Force Report")[8]

"Protecting Workers Exposed to Lead-Based Paint Hazards: A Report to Congress, National Institute for Occupational Safety and Health: Cincinnati, OH (1997): DHHS (NIOSH) Publ, No 98-112 ("NIOSH Report to Congress")[9]

2.5 *Private-Sector Standards and Guidance:*

American Institute of Architects Guidance[10]

American Consulting Engineers Council Guidance[11]

NIBS-Lead-Based Paint Operation and Maintenance Work Practice Manual for Homes and Buildings, National Institute of Building Sciences (NIBS), 1995. ("NIBS Manual")[12]

NIBS-Guide Specifications for Reducing Lead-Based Paint Hazards, NIBS, 1995. ("NIBS Specifications")[12]

SSPC-Standard Procedure for Evaluating the Qualifications of Painting Contractors to Remove Hazardous Paint: Qualification Procedure No. 2 (SSPC-QP2), Steel Structures Painting Council, 19 May 1995[13]

3. Terminology

3.1 *Definitions*—If applicable, refer to existing ASTM terminology standards having general application. Examples are as follows:

3.1.1 See Terminology E 631 for general definitions,

3.1.2 See Terminology E 1480 for building-related terms, and

3.1.3 See Terminology E 1605 for lead hazards.

[5] Available from Superintendent of Documents, U.S. Government Printing Office, P.O. Box 371954, Pittsburgh, PA 15250-7954.

[6] Available from the National Lead Information Clearinghouse, 1025 Conn. NW, W. Suite 1200, Washington, DC 20036.

[7] Information on availability can be obtained from U.S. Army Engineering and Support Center, Attn: CEHNC-ED-ES-G, 4820 University Square, Huntsville, AL 35816-1822. The documents can be found on the World Wide Web at http://www.mrd.usace.army.mil/mrded-h/publish.html.

[8] Available from HUD USER, P.O. Box 6091, Rockville, MD 20849.

[9] Available from NIOSH Publications, 4676 Columbia Parkway, Cincinnati, OH 45226.

[10] Available from American Institute of Architects, 1735 New York Ave., NW, Washington, DC 20006.

[11] Available from American Consulting Engineers Council, 1015 15th St., NW, #802, Washington, DC 20005.

[12] Available from the National Institute of Building Sciences, 1201 L St., NW, Suite 400, Washington, DC 20005.

[13] Available from SSPC, 40 24th Street, 6th Floor, Pittsburgh, PA 15222-4643.

3.1.4 Other terms related to lead hazards and to activities for identifying and controlling them have been defined in HUD Guidelines, Title X as codified in 42 U. S. C. Chapters 63 and 63A, and 40 CFR 745.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *Class A facilities*—facilities in which leaded paint or lead hazards are probable.

3.2.2 *Class B facilities*—facilities in which leaded paint or lead hazards are less probable than in class A facilities.

3.2.3 *Class C facilities*—facilities which are likely not to have leaded paint or lead hazards.

3.2.3.1 *Discussion*—"Likely not to have leaded paint" means that there is specific evidence to support this conclusion, rather than an absence of evidence against it.

3.2.4 *deteriorated paint*—any interior or exterior paint that is peeling, chipping, or cracking.

3.2.5 *environmental investigation blood lead level*—a blood lead level in a child under 6 years of age with that is high enough to trigger an environmental investigation (and possibly further action) as recommended by the Centers for Disease Control and Prevention (CDC), or as defined by applicable laws and regulations.

3.2.5.1 *Discussion*—CDC Guidance recommends environmental investigation for children with a confirmed blood lead level of 20 micrograms per deciliter or above (measured in a single test), or a level of 15 micrograms per deciliter or above (measured in two consecutive tests that are at least three months apart).

3.2.6 *elevated blood lead level (EBL)*—total (whole) blood lead level in a child under 6 years of age that equals or exceeds 10 micrograms per deciliter.

3.2.7 *facility*—a physical setting used to serve a specific purpose.

3.2.7.1 *Discussion*—A facility may be an entire building and its surroundings or an individual dwelling unit and the portions of its surroundings that are used by its occupants, depending on the purpose. It may also be a property without a building, such as a playground, if visited by children under six or pregnant women.

3.2.8 *lead-based paint inspection*—a surface-by-surface evaluation to determine the presence of lead-based paint.

3.2.8.1 *Discussion*—Also called an inspection or *paint inspection*. See 40 CFR 745 and HUD Guidelines, Chapter 7.

3.2.9 *leaded paint*—paint or other coatings containing lead compounds at potentially hazardous concentrations.

3.2.9.1 *Discussion*—Leaded paints having lead concentrations exceeding the Consumer Products Safety Commission limit (0.06 % by weight of nonvolatile solids or dried film) are called *lead-containing paints*. Leaded paints having concentrations equal to or exceeding limits established under Section 302(c) of the Lead-Based Paint Poisoning Prevention Act (0.5 % by weight or 1.0 mg/cm^2 in dried film) or limits established under state or local regulations, are called *lead-based paints*. OSHA regulations cover any detectable level of lead in paint.

3.2.10 *leaded paint characterization*—a procedure for determination of the lead content in paint in order to determine whether it is potentially hazardous.

3.2.10.1 *Discussion*—The difference between leaded paint characterization using an XRF and a *lead-based paint inspection* is that, in characterization, "negative" results are followed by quantitative analysis and "inconclusive" results are treated as "positive."

3.2.11 *lead hazard*—condition that may cause exposure to lead that may result in adverse human health effects such as exceeding limits established by the federal, state, or local agency having jurisdiction. Such conditions include deteriorated leaded paint, lead-contaminated bare soil, and lead-contaminated dust on such surfaces as floors, window sills, and window troughs, the release of leaded paint on, for example, friction, impact or accessible surfaces; lead-related environmental, occupational, and safety hazards; and water containing lead at concentrations exceeding EPA guidelines or applicable regulations.

3.2.11.1 *Discussion*—This definition includes *lead-based paint hazards* as defined by Title X, as well as hazards that may arise from such other sources as lead in water and leaded paints.

3.2.12 *lead hazard management*—activities to characterize the presence of lead hazards at a facility; develop a facility-specific plan to control and eliminate lead hazards based on these findings; and implement a program based on the plan.

3.2.13 *maintenance*—work performed to keep facilities in good condition.

3.2.14 *owner*—any person or entity that alone or with others, meets the following conditions: (*1*) holds legal title to a facility or real property, (*2*) occupies or controls the facility or real property under an agreement that gives the person or entity the option to purchase it, or (*3*) occupies or controls the facility or real property under a net lease.

3.2.15 *property manager*—any person who exercises control over a facility.

3.2.16 *renovations and repairs*—work designed to alter facilities or to restore their good condition.

3.2.17 *lead risk assessment*—an on-site evaluation including, but not limited to, visual evaluation and dust and soil testing to determine and report the existence, nature, severity, and location of lead hazards. As used in this guide, the term does not include *risk screens*.

3.2.17.1 *Discussion*—See 40 CFR 745 and HUD Guidelines, Chapter 5.

3.2.18 *risk assessment*—see *lead risk assessment*.

3.2.19 *risk screen*—an on-site evaluation, consisting of visual evaluation and dust testing, to identify whether potential lead-based paint hazards are present.

3.2.19.1 *Discussion*—Also called *lead hazard screen* or *lead hazard screen risk assessment*. See 40 CFR 745 and HUD Guidelines, Chapter 5.

3.2.20 *sample*—as applied to lead hazard evaluations of multifamily housing or to occupational exposure assessment, a group of housing units or portion of materials taken from a large collection of housing units or quantities of material (i.e., a population) which serves to provide information that may be used as a basis for making a decision concerning the larger collections.

3.2.20.1 *random sample*—a sample drawn from a population in a way that allows each member of the population to have a chance of being selected with known probability, using a randomization procedure (such as a random-number generator or the flip of an unbiased coin) to determine which member(s) of the population is (are) selected to enter the sample.

3.2.20.2 *targeted sample*—a sample selected from a population, based on information supplied by the owner, that is likely to have the greatest probability of having the property of interest.

3.2.20.3 *worst-case sample*—a sample selected from a population, based on information from a visual examination of the whole population likely to have the greatest probability of having the property of interest.

3.2.21 *specialized cleaning*—the use of cleaning protocols that have been shown to be effective in removing lead-contaminated dust to achieve clearance levels as established by the applicable government agency.

3.2.22 *substrate*—unfinished building-material surface to which finishes are applied. Examples include wood, plaster, drywall, masonry, and metal.

3.2.22.1 *Discussion*—Also called *substrate base*.

3.2.23 *tenant*—any person or entity that occupies a facility pursuant to the terms of a lease or other agreement.

3.2.24 *visited*—as applied to visits to a facility by one or more children under six or pregnant women, the condition of their being present for at least 3 hours per day on at least 2 days per week and at least 60 hours per year.

3.2.24.1 *Discussion*—Children have some chance of incurring adverse health effects from exposures at facilities with leaded paint in poor condition or other severe lead hazards during periods too short to meet the definition. The user may wish to apply this guide to such facilities.

4. Summary of Guide

4.1 This guide outlines a procedure for identifying and managing lead hazards in facilities occupied or visited by children under six or by pregnant women.

4.2 Facilities are classified according to lead hazard potential.

4.3 Facilities in which there is a significant probability of leaded paint or lead hazards require, as a baseline, Essential Maintenance Practices in accordance with the HUD Task Force Report.

4.4 In addition, facilities in certain classifications require a lead hazard management program unless and until lead hazards and their potential sources are removed.

4.5 The lead hazard management program supports a written plan that includes standard operating procedures for:

4.5.1 Evaluating lead hazards,
4.5.2 Occupant education and protection,
4.5.3 Environmental, safety, and health programs,
4.5.4 Maintenance and cleaning,
4.5.5 Real estate transaction procedures,
4.5.6 Responding to elevated blood lead level (EBL) cases,
4.5.7 Planning lead hazard control projects,
4.5.8 Performing lead hazard control projects,
4.5.9 Ongoing monitoring and reevaluation,
4.5.10 Qualification of personnel and organizations,
4.5.11 Sampling and analysis, and
4.5.12 Documentation.

NOTE 1—Owner-occupants and owners of up to four residential dwelling units may wish to implement their program without a complete written plan; they should note that certain regulations require documentation. (See Appendix X4.)

4.6 Fig. 2 provides an outline of the lead hazard management process.

5. Significance and Use

5.1 This guide provides direction for the planning, execution, and evaluation of lead hazard management activities and lead hazard control work in facilities occupied or visited by children under six or by pregnant women. It provides a framework for implementing the policy outlined in the HUD Task Force Report and applying relevant ASTM standards. It does not specify whether to perform lead hazard control activities, nor when to do them, but how to do them.

5.2 This guide is also useful for protecting occupants, staff, and other workers from harmful exposure to lead.

5.3 This guide may be used by owners and property managers including owner-occupiers and others responsible for maintaining properties. It may also be used by lead hazard management consultants, construction contractors, and labor groups. It may also be used by real estate, financial, and insurance organizations and by legislators, regulators, and lawyers.

5.4 This guide supplements standard practices and guidance material by helping users make decisions among alternatives that are applicable to their facilities.

6. Classifying Facilities According to Lead Hazard Potential

6.1 The facility classification procedure is intended to:

6.1.1 Establish which facilities have leaded paint or lead hazards and set priorities for lead hazard management.

6.1.2 Determine which facilities are likely not to have lead paint or lead hazards and therefore do not need lead hazard management.

6.1.3 Fig. 3 is a flow diagram of a typical procedure. In some cases, some of the steps may not be appropriate, or their order may need to be changed.

6.2 HUD Guidelines, HUD Task Force Report, NIBS Manual, and other documents (see Section 2 for full titles) should be used to gain general knowledge of the sources, nature, and extent of lead hazards, and an overall understanding of the procedures used to identify and control them.

6.3 Gather information, defined in 40 CFR 745, HUD Guidelines, HUD Task Force Report, and Appendix X1, relating to the possible existence and extent of lead hazards. Potential sources of information are construction drawings and specifications, property records, maintenance records, records of any and all activities associated with lead hazard evaluation and control, staff, occupants, and former owners.

6.4 Classify facilities according to their potential for lead hazards using the information gathered.

6.5 A qualitative scheme that may be used is:

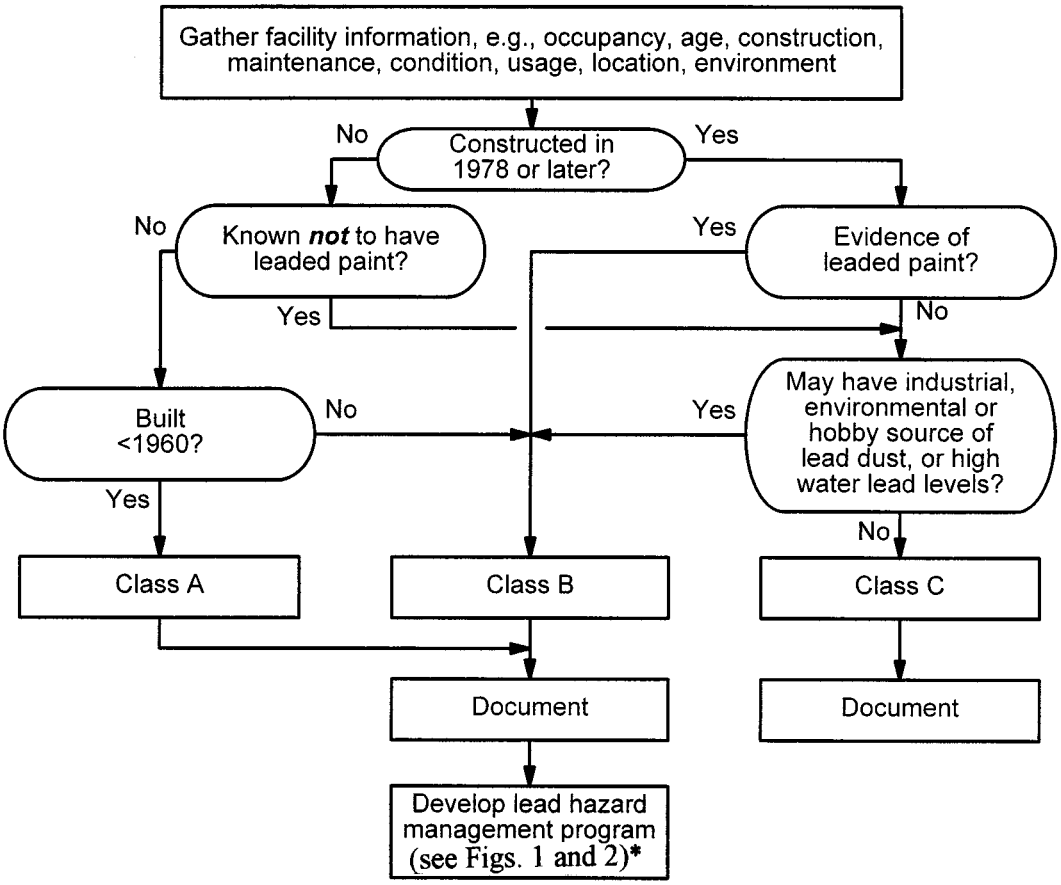


FIG. 3 Procedure for Classification of Facilities

6.5.1 *Class A Facilities*—Leaded paint or lead hazards are probable.

6.5.2 *Class B Facilities*—Leaded paint or lead hazards are less probable.

6.5.3 *Class C Facilities*—Likely not to have leaded paint or lead hazards.

NOTE 2—"Likely not to have leaded paint" means that there is specific evidence to support this conclusion, rather than an absence of evidence against it.

6.6 *Class A Facilities*:

6.6.1 Any facility built before 1960, except as provided in 6.8.2.

NOTE 3—The date criterion of 1960 may be adjusted by the user based on information about the facility or facilities affected. The date used here is based on U.S. production of white lead, which decreased during the 1940s and the beginning of the 1950s. It decreased again in he 1960s, shortly after the American National Standards Institute (ANSI) adopted a voluntary standard limiting the lead concentration in paint to 1 % by weight (in 1955). The user may wish to select a criterion of 1950 if information about the facilities indicates that those constructed between 1950 and 1977 are less likely to have potential for lead hazards, such as their having lower lead concentrations in their leaded paint or less leaded paint, or both. Similarly, the user may wish to develop criteria with two (or more) pre-1978 dates for facility classification, such as pre-1950 (Class A1) and 1950-1959 (Class A2).

6.6.1.1 Any other facility that is known to have significant areas of deteriorated paint that is known or can reasonably be presumed to be leaded.

6.6.1.2 Any other facility that is known or can reasonably be presumed to have other extensive lead hazards.

6.7 *Class B Facilities*:

6.7.1 Any facility built since 1960 and before 1978, except as provided in 6.8.2.

6.7.2 Any facility built in 1978 or later in which there is specific evidence that lead-containing paint, including pre-1978 paint stocks, paint sold for nonresidential use, or imported paint has been used.

6.7.3 Any facility built in 1978 or later with an environmental source of lead contamination, such as:

6.7.3.1 Facilities within several hundred yards (meters) of an outdoor steel structure or superstructure or an industrial or mining source of lead,

6.7.3.2 Facilities containing building components, or owner-supplied fixtures or equipment, that have been identified as sources of lead hazards by an appropriate agency. An example is lead-containing vinyl miniblinds.

6.7.4 Any facility built in 1978 or later in which an industrial process or hobby likely to produce lead contamination has been or is being performed in a common area or about which the owner or lessor has been or reasonably should be aware.

NOTE 4—HUD Guidelines, Chapter 16, and CDC Statement, pages 22 and 24, and CDC Guidance, page 45, list some potential sources of environmental, occupational, and hobby lead contamination.

6.7.5 Any facility built since 1978 for which the owner or lessor has been notified by the local water authority that lead levels in tap water exceed the EPA Action Level listed in 40 CFR 141.

6.8 *Class C Facilities*:

6.8.1 Any other facility built in 1978 or later.

6.8.2 Any facility built before 1978 for which there is a complete and reliable history that excludes the past use of lead-containing paint and excludes the occurrence of activities with the potential to create lead hazards.

NOTE 5—If there is significant uncertainty about the basis for classifying a facility as Class C, classify as Class A or Class B instead.

6.9 *Evaluation and Program Implementation*—Decide whether to evaluate for lead hazards, and implement applicable programs, as follows:

6.9.1 *Class A or Class B facility*—Decide whether to evaluate for lead hazards.

6.9.1.1 Consider such facility-based factors as its use, occupancy, and condition.

6.9.1.2 Consider such location-based factors as neighborhood condition, existence and reliability of community blood lead screening data, and the legal, regulatory, and guidance environment.

6.9.1.3 If the facility is evaluated, base the evaluation on the procedures of Section 7.

6.9.2 *Class C Facility*:

6.9.2.1 Unless new information is discovered that could change its classification, a Class C facility does not require further action under this guide.

6.9.2.2 Implement facility environmental, safety, and health programs in accordance with applicable laws, regulations, and the policies of the owner, property manager, and, as applicable, lessor(s).

6.10 Document the classification for each facility.

7. Evaluating Lead Hazards

7.1 Lead hazard evaluation is used to identify current lead hazards and the potential current and future sources of lead hazards, in order to support decision-making for implementing the lead hazard management program application of lead hazard control methods. Fig. 4 illustrates the procedure.

7.1.1 Lead hazard evaluation methods include lead-based paint inspection, lead risk assessment, and paint characterization.

7.1.2 Allowable levels of lead in dust and soil are listed in EPA Guidance on the identification of Lead Hazards, reproduced in HUD Guidelines Chapter 5, or in state or local regulations.

7.2 A facility in which a child with an environmental intervention blood lead level has been detected requires an immediate response independent of any classification system. It takes priority over all other facilities. Respond to EBL cases in accordance with Section 13.

7.3 Prioritize Class A and Class B facilities, or groups of these facilities, to consider for lead hazard evaluation. Give the first priority to facilities currently occupied, or planned to be occupied, by children under six, or a woman known to be pregnant. Among these, give Class A priority over Class B. Then prioritize according to the following factors; other things being equal, give Class A priority over Class B.

7.3.1 Date of construction.

7.3.2 Age and physical condition of the facility.

7.3.3 Presence of environmental sources of lead contamination.

7.3.4 Known existence and number of children with elevated blood levels of lead (EBLs) in the neighborhood.

7.3.5 Plans for occupant turnover.

7.3.6 Plans for renovations or repairs for other reasons.

7.4 Determine whether there are groups of facilities with similar construction and maintenance histories that may be evaluated by sampling.

7.5 Decide whether to evaluate lead hazards and which methods to use according to the following:

7.5.1 Potential advantages of evaluation, including:

7.5.1.1 Reductions in cost, time, and effort from avoiding unnecessary or inappropriate lead hazard control activities.

7.5.1.2 Increased confidence of owner, staff, and occupants in the safety of the facility.

7.5.2 Whether particular evaluation methods must be used in order to comply with regulations, such as 24 CFR 35 for federally-assisted housing.

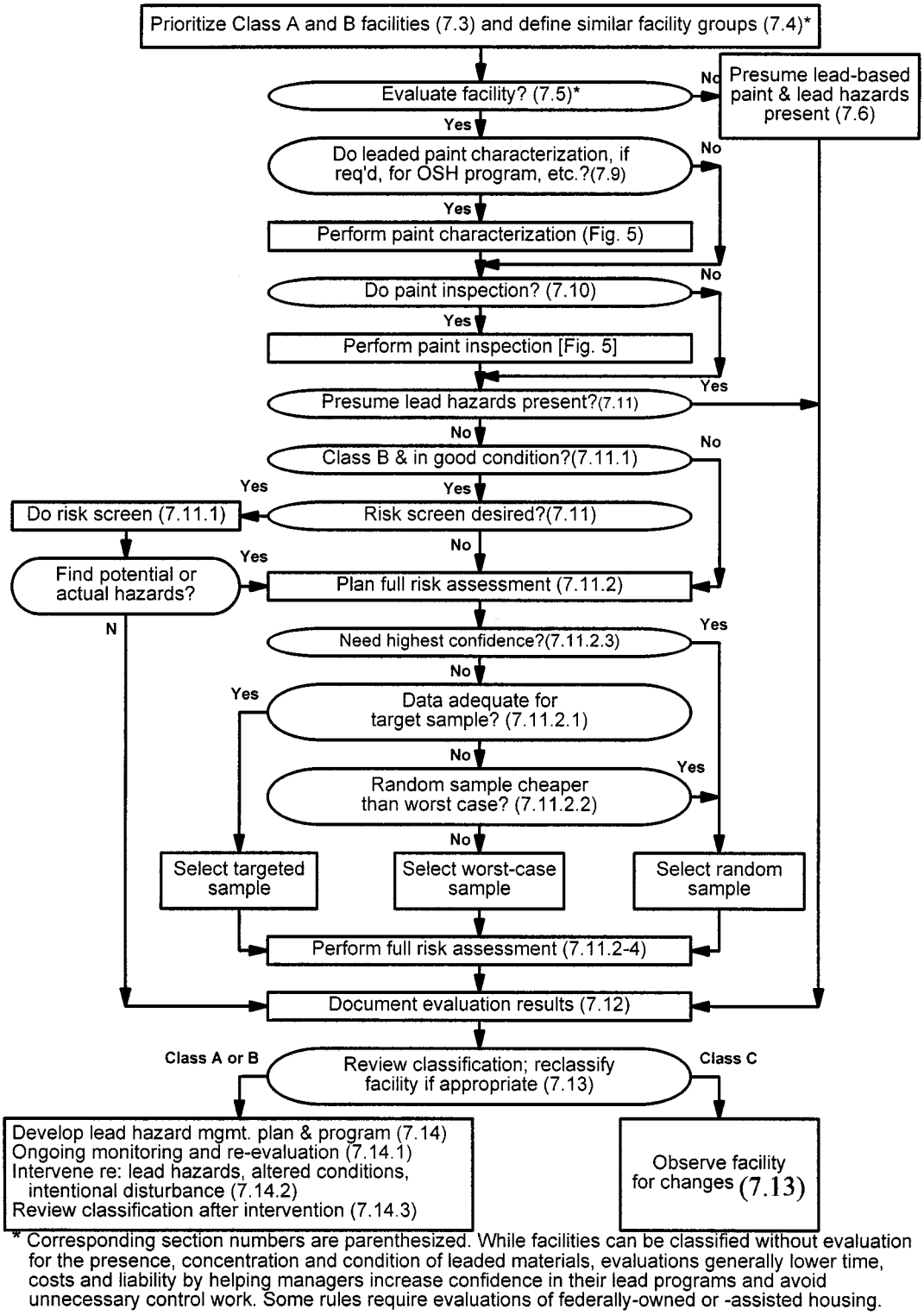
7.5.3 Whether independent verification and documentation of the lead hazard status of a facility is required by regulations or is desirable to minimize liability.

7.6 Unless and until lead-based paint inspections or leaded paint characterizations are performed in Class A and B facilities, presume that all paint in them is lead-based paint. Unless and until risk screens or lead risk assessments are performed in Class A and B facilities, presume that deteriorated paint is lead-based paint and that all dust and bare soil are lead-contaminated. Make these presumptions if tenant refuses access.

7.7 Follow ASTM standards except where other standards and practices are required by regulations. In that case, use the more stringent of the individual provisions between the regulation and the corresponding ASTM standard.

7.8 Perform visual evaluations of structures, substrates, and surfaces in accordance with 40 CFR 745 and HUD Guidelines, Chapter 5.

7.9 Decide whether to perform leaded paint characterization. It may be performed on all surfaces in lieu of lead-based paint inspections, or on individual surfaces that are intended to



* Corresponding section numbers are parenthesized. While facilities can be classified without evaluation for the presence, concentration and condition of leaded materials, evaluations generally lower time, costs and liability by helping managers increase confidence in their lead programs and avoid unnecessary control work. Some rules require evaluations of federally-owned or -assisted housing.

FIG. 4 Evaluation of Lead Hazards

be disturbed. Fig. 5 describes how the leaded paint characterization procedure is used.

7.9.1 The purpose of leaded paint characterization is to determine the lead content in paint in order to determine whether it is potentially hazardous. It may detect some types of lead hazards, such as high lead levels in accessible or chewable paint. It does not detect all lead hazards. It is useful for compliance with OSHA regulations that apply to work-related airborne lead dusts, independent of the level of lead in the paint disturbed or dust dispersed.

7.9.2 Perform leaded paint characterization if required by state or local regulations, such as for certain facilities before

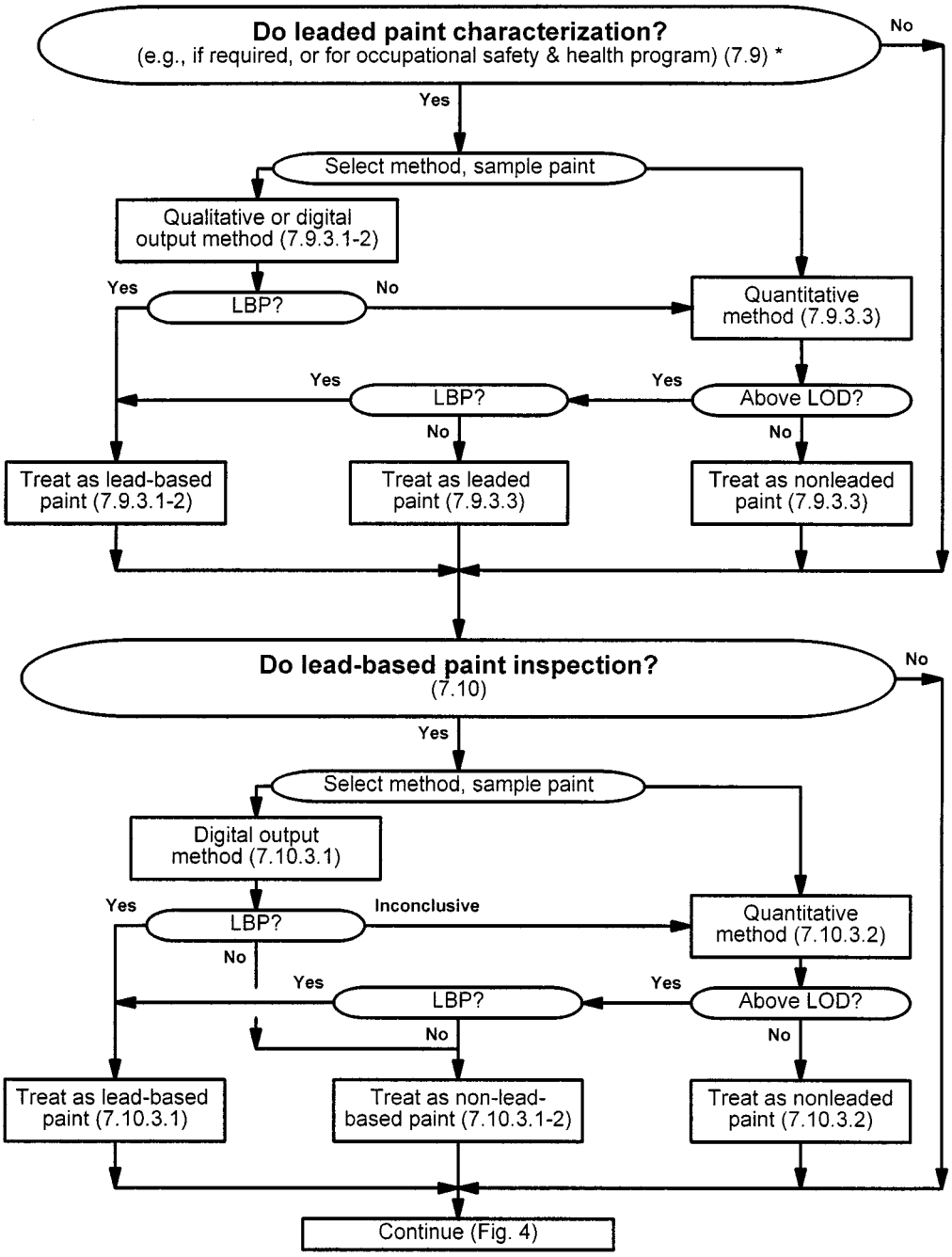


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FIG. 5 Paint Characterization and Inspection

they are sold or leased for residential use or if deemed appropriate as part of the Lead Hazard Management Program.

7.9.3 Perform leaded paint characterization in accordance with Section 18 using the following methods:

7.9.3.1 Qualitative methods, such as chemical spot testing, intended to identify surfaces with high levels of lead, supplemented by quantitative analysis of samples that give inconclusive or negative results.

7.9.3.2 *Digital-output* methods, such as on-site X-ray fluorescence, intended to identify surfaces with high levels of lead, supplemented by quantitative analysis of samples that give inconclusive results or negative results, as needed.

7.9.3.3 Quantitative methods (those meeting the NIOSH accuracy criterion) – Ref "Guidelines for Air Sampling and Analytical Method Development and Evaluation" (DHHS/NIOSH Pub. No. 95-117)) such as Inductively Coupled Plasma Atomic Emission Spectrometry (ICP-AES), Flame Atomic Absorption (FAAS), or Graphite Furnace Atomic Absorption (GFAAS).

7.10 Decide whether to perform lead-based paint inspections to determine the applicability of lead-based paint and related regulations. Fig. 5 shows how the lead-based paint inspection procedure is used.

7.10.1 The purpose of lead-based paint inspections is to determine whether paint is lead-based paint.

7.10.2 Perform lead-based paint inspections if required by state or local regulations, such as for certain facilities before they are sold or leased for residential use or if deemed appropriate as part of the Lead Hazard Management Program.

7.10.3 Perform lead-based paint inspections in accordance with Section 18, 40 CFR 745, and HUD Guidelines, Chapter 7 using the following methods:

7.10.3.1 *Digital-output* methods, such as on-site X-ray fluorescence supplemented by quantitative analysis of samples that give inconclusive results.

7.10.3.2 Quantitative methods (those meeting the NIOSH accuracy criterion) such as ICP-AES, FAAS or GFAAS.

7.11 Determine the existence, nature, severity, and location of lead hazards by performing risk screens or lead risk assessments or presume that lead hazards are present.

7.11.1 Choose whether to perform risk screens. Risk screens should be performed only in Class B facilities in which substrates and paint are in good condition with no significant deterioration.

7.11.2 Perform lead risk assessments in Class A facilities and in Class B facilities that do not meet the requirements for risk screens or in which risk screens identify potential lead hazards. Select among sampling strategies for similar groups of facilities in accordance with HUD Guidelines, Chapter 5, and as follows:

7.11.2.1 Use targeted sampling if adequate reliable information to identify the sites likely to have the greatest probability of having lead hazards is supplied by the owner. Information that should be known in order to use targeted sampling is listed in Appendix X1.

7.11.2.2 Use worst-case sampling if there is inadequate reliable information available from the owner to use targeted sampling. Use visual examinations of the condition of the facilities, performed by a risk assessor qualified in accordance with Section 17, to identify the sites with the greatest probability of having lead hazards. Building condition factors that should be determined are listed in Appendix X2.

(*a*) Worst-case sampling is normally more costly than targeted sampling and sometimes more costly than random sampling because of the need to do the visual examinations. If the examinations are being performed for other reasons, for example as part of the building maintenance program, the additional cost does not apply.

7.11.2.3 Use random sampling if there is inadequate information for targeted sampling, if it is more cost-effective than worst-case sampling, or if a higher degree of confidence in the results is required.

7.11.3 Sample common-use areas in accordance with 40 CFR 745 and HUD Guidelines, Chapter 5.

7.11.4 If notice has been provided by the local water authority that lead levels in tap water exceed the EPA Action Level listed in 40 CFR 141, consider testing the water. Test water from wells or private supply systems.

7.12 Document the results of evaluations. Follow the guidance for reports provided in HUD Guidelines Appendices 8.1 and 8.2. Include the information specified in 24 CFR 35, 40 CFR 745, state and local regulations, and HUD Guidelines Chapter 5 or 7 in the report, and a plan of action for controlling lead hazards. Sample standard forms are provided in HUD Guidelines.

7.13 Perform classification of facilities in accordance with Fig. 3 by reviewing results of classification and reclassifying as appropriate. If the facility is reclassified as Class C, follow 6.10.

7.14 Class A and B Facilities—Develop a lead hazard management program and plan in accordance with Section 8.

7.14.1 Schedule facilities for ongoing monitoring and reevaluation in accordance with Section 16.

7.14.2 Schedule facilities in which lead risk assessments have identified lead hazards or in which lead hazards are presumed for work.

7.14.2.1 Plan maintenance work in accordance with Section 9 and lead hazard control project work in accordance with Section 14.

7.14.2.2 Perform the work in accordance with Section 9 or 15, as applicable.

7.14.3 Review the facility classification in accordance with Fig. 3 after maintenance or lead hazard control work is performed.

7.15 After work is performed, revise the lead hazard management plan and continue to implement the program.

8. Developing a Lead Hazard Management Program

8.1 A lead hazard management program is intended to ensure that occupants are provided with facilities that are free of lead hazards. Guidance for developing a program is provided in HUD Guidelines, Chapter 3, in the Task Force Report, and in EPA, OSHA, NIBS, and other guidance documents referenced in Section 2.

NOTE 6—A lead hazard management program includes a lead hazard management plan and the organization, resources and activities that are required to develop and implement the plan.

8.1.1 Class A facilities tend to require broader and more stringent lead hazard management plans and programs than do Class B facilities. This is because Class B facilities generally have fewer potential or actual lead hazards, which are generally of lower risk when they do occur.

8.2 The program develops, maintains, and uses a lead hazard management plan, typically written to identify potential pathways for exposure, to identify and implement actions to prevent exposure, and to control lead hazards.

8.2.1 The plan documents all identified and presumed lead hazards, their priority, and the selection of control methods. The program includes applicable activities in Sections 9-19.

8.2.2 For rental facilities built before 1950, incorporate the Lead Hazard Control Plan specified in the HUD Task Force Report; the topics covered in that Control Plan may be incorporated into the Lead Hazard Management Plan for those and other facilities.

8.2.3 *Each SOP*:

8.2.3.1 Identifies the personnel, organizations, and financial resources required and assigns specific responsibilities.

8.2.3.2 Sets goals supported by measurable objectives (desired results) and provides a schedule for their completion.

8.2.3.3 Provides a procedure for regularly reviewing and updating the SOP and the program to accommodate new information, changes in the available personnel, organizations, or resources, new regulations, and other changes.

8.3 For a program with several facilities, give priority to:

8.3.1 Responding to the identification of an occupant with elevated blood lead level (EBL) in accordance with Section 13; then, with all other factors among the facilities being equal:

8.3.2 Developing the plan and implementing the resulting program in facilities occupied or visited by children under six or by pregnant women, followed by other facilities; then

8.3.3 Developing the plan and implementing the resulting program in facilities in Class A, and then in Class B, while ensuring compliance with applicable regulations in all facilities at all times.

8.4 Class A and B facilities may develop lead hazards in the future, even if none exist at present. Develop a Lead Hazard Management Plan for these facilities, and implement it in a documented lead hazard management program. Fig. 6 illustrates the procedure.

8.5 Establish points of contact at the agencies having jurisdiction over lead hazard management, public health,

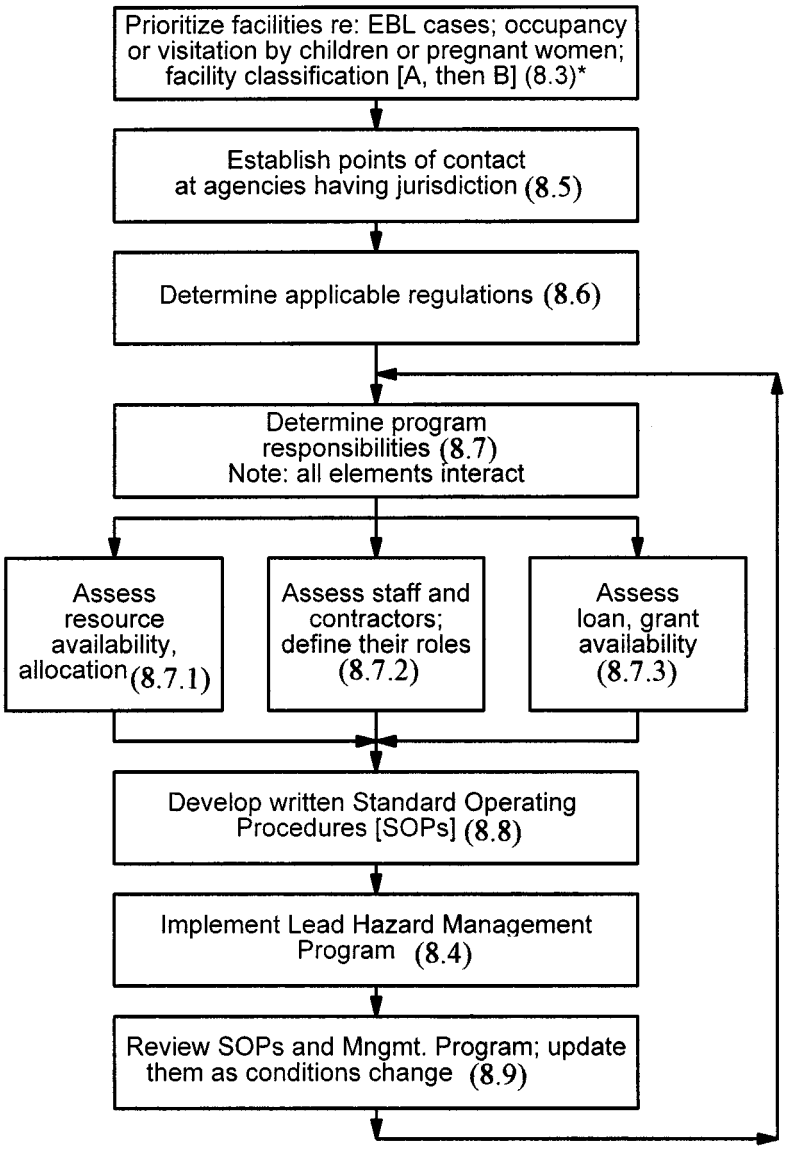

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FIG. 6 Developing a Lead Hazard Management Program

occupational safety and health, and the environment for each facility. Many agencies are listed in the Appendixes of the HUD Guidelines.

8.6 Determine state and local regulations applicable to each facility. Determine the most stringent requirements among federal, state, and local regulations.

8.7 Determine program goals, strategies, personnel, and financial resource requirements and acceptable levels of health, safety, environmental, financial, and organizational risk.

8.7.1 In meeting goals that extend beyond the minimum requirements of this provisional guide, owners and property managers may implement the program in a variety of ways depending on their resources, risk management strategy, and organizational culture.

8.7.2 Determine which program functions are to be performed by staff and which are to be contracted.

8.7.2.1 Consider staff members' experience in building operation, maintenance and management. Consider their dedication, capability, thoroughness, and commitment.

8.7.2.2 Designate specific staff responsibilities for all program functions which are not to be performed by contractors, including responsibilities for ensuring contractor performance.

8.7.3 Determine the availability of loans and grants for lead hazard control or for weatherization and renovation projects with which lead hazard control activities may be combined.

8.8 Develop written standard operating procedures (SOPs) for the Lead Hazard Management Program elements in Sections 9-19, as summarized in 4.5.

NOTE 7—The SOPs are part of the lead hazard management plan.

8.8.1 The owner is responsible for establishing and maintaining performance standards for portions of the program that are contracted out. SOPs should define, enforce, and document compliance to these standards.

8.8.2 The minimum requirement for SOPs is to describe how to perform tasks and to document that they have been performed.

8.9 Designate personnel qualified in accordance with Section 17 to review and update each SOP. Review each SOP annually and when any change is required. Document the review or update with a signature and a revision date.

9. Maintenance and Cleaning

9.1 Maintenance and cleaning procedures are intended to minimize the generation of lead hazards and to effectively remove lead-contaminated dust and lead-contaminated soil that has been brought inside buildings.

9.2 Establish and implement a documented maintenance and cleaning program. Fig. 7 is a summary of the program elements.

9.2.1 For all Class A and Class B facilities, the program should include the Essential Maintenance Practices specified in the HUD Task Force Report as a baseline.

9.2.2 Comply with OSHA regulations (29 CFR 1910.1025 or, for maintenance in conjunction with construction, 29 CFR 1926.62) and, as applicable, EPA waste regulations (40 CFR 261); and where applicable, state or local regulations.

9.2.3 Use the HUD Task Force Report and the NIBS Manual as the primary sources of guidance for the program.

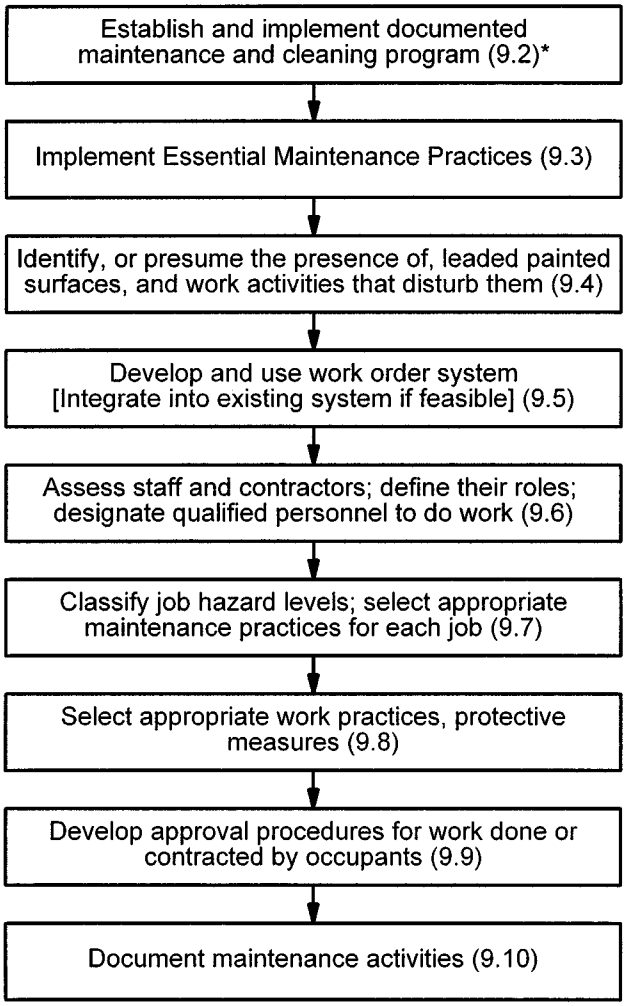

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FIG. 7 Maintenance and Cleaning

9.2.4 Use HUD Guidelines, Chapter 17 and Task Force Report for general guidance.

9.2.5 Class A facilities tend to require broader and more stringent lead hazard management plans and programs than do Class B facilities. This is because Class B facilities generally have fewer potential or actual lead hazards, which are generally of lower risk when they do occur.

9.2.6 Incorporate maintenance and cleaning programs into lead hazard management programs where the latter are established.

9.3 *Implement Essential Maintenance Practices*:

9.3.1 Avoid creating lead hazards, and limit the spread of lead contamination by using safe work practices, avoiding unsafe practices, control of worksites, and specialized cleaning.

9.3.2 Perform visual evaluations at specified intervals to locate deteriorated paint.

9.3.3 Repair areas of deteriorated paint (above de minimis size) in accordance with Sections 14 and 15.

9.3.4 Disclose information to occupants in accordance with 10.6.1.

9.3.5 Provide written notice to occupants in accordance with 10.6.2 and points of contact in accordance with 10.6.3. Promptly respond to occupants' reports.

9.3.6 Train maintenance staff in accordance with Section 17.

9.4 Identify or presume the presence of leaded paint surfaces and work activities that disturb them. Identify leaded dust or soil which may be dispersed.

9.5 Develop and use a work order system for scheduling, notification, and planning of work. Integrate this system into the existing work system where reasonably feasible.

9.6 Designate qualified personnel, whether staff or contracted, to perform these activities.

9.7 Classify the level of hazard of each job in accordance with OSHA and applicable state regulations, HUD Guidelines, Chapter 17, and the NIBS Manual.

9.8 Select appropriate work practices and protective measures.

9.8.1 Prohibit the use of lead-containing paints in or around facilities where it is still legal to use them.

9.8.2 Use only plumbing fixtures and solder that comply with the requirements of the Safe Drinking Water Act Amendments of 1986.

9.8.3 Repair, renovate, or remove drinking fountain water coolers with lead-lined tanks in accordance with the requirements of the Lead Contamination Control Act of 1988.

9.8.4 Perform specialized cleaning for lead dust removal in accordance with HUD Guidelines, Chapter 14, in Class A and B facilities in which lead risk assessments have identified lead hazards:

9.8.4.1 At turnover, unless there is documented evidence from other units in a similar group that demonstrate that specialized cleaning is not required.

9.8.4.2 As needed to control hazards until scheduled lead hazard control projects are performed.

9.8.5 Remove and clean carpets and other fabric with visible dust or debris in accordance with HUD Guidelines, Chapter 14, and the NIBS Manual.

9.8.6 For larger maintenance projects, consider performing a pilot project to determine the effectiveness of controls and completeness of the underlying work.

9.9 Develop formal approval procedures for ensuring that work performed or contracted by occupants conforms to the lead hazard management program.

9.10 Document maintenance activities, including visits to facilities, work performed, staff observations, any data collected, and occupant reports.

9.11 Continue in accordance with 15.10.

10. Occupant Education and Protection Program

10.1 The occupant education and protection program is intended to minimize the risk of lead exposure to occupants and visitors arising from the facility and from other sources. It is also used to encourage the cooperation of occupants in managing lead hazards.

10.1.1 Fig. 8 is an overview of an occupant education and protection program.

10.2 Owners and property managers are responsible for educating and protecting occupants and tenants who are themselves lessors of the facilities. Lessors are responsible for educating and protecting lessees in their spaces. Owners and property managers should make information available to their own lessors. Provide information in conjunction with the initiation of the lead hazard management program and with real estate transactions in accordance with Section 12.

10.3 Determine what information occupants need to receive, including the information in 10.6-10.9. Select educational methods and materials that are appropriate to the occupants.

10.4 Develop and implement a documented occupant education and protection plan. Protect occupants in accordance with HUD Guidelines, Chapter 8, NIBS Manual and NIBS Specifications.

10.4.1 Consider occupants' ages, sexes, languages, education, and socioeconomic statuses. Appraise their attitudes and confidence they have in the types and formats of risk communication information provided to them.

10.4.2 If desired, obtain assistance in planning and in identifying suitable educational materials from the health department having jurisdiction.

10.5 Designate staff who are known to and trusted by occupants as points of contact.

10.6 When occupants move in or when implementing the lead hazard management program:

10.6.1 Disclose the presence of known LBP and lead hazards to prospective occupants in accordance with 40 CFR 745 and 24 CFR 35 (see the Disclosure Rule Guidance), state or local regulations, or other suitable documents as appropriate for federal property.

10.6.2 Give existing occupants the EPA/HUD/CPSC Information Pamphlet and written notice of the known or possible presence of leaded paint in the areas that they use, including their space and common areas.

10.6.3 Tell existing and new occupants who the point of contact is on lead hazard issues and how to contact that person.

10.6.4 Advise occupants of precautions that they should take to protect children from lead hazards. (See HUD Guidelines, Chapter 11.) Include warnings about potential environmental, occupational, or hobby sources of lead hazards.

10.6.5 Agree on arrangements for reasonable access to perform lead hazard management activities.

10.6.6 If notice has been provided by the local water authority that lead levels in tap water exceed the EPA Action Level listed in 40 CFR 141, notify occupants. Consider using the text provided in that regulation for information.

10.7 Give occupants significant or relevant new information that pertains to or affects them as it becomes available, including the results of lead hazard evaluations and plans for impending work that may generate lead hazards.

10.7.1 If lead hazards are not controlled within 15 days, relocate children under six or women known to be pregnant to comparable facilities.

10.8 Obtain and use notifications from occupants of conditions or activities that may generate lead hazards. Occupants should be educated and encouraged to recognize and report such conditions and activities.

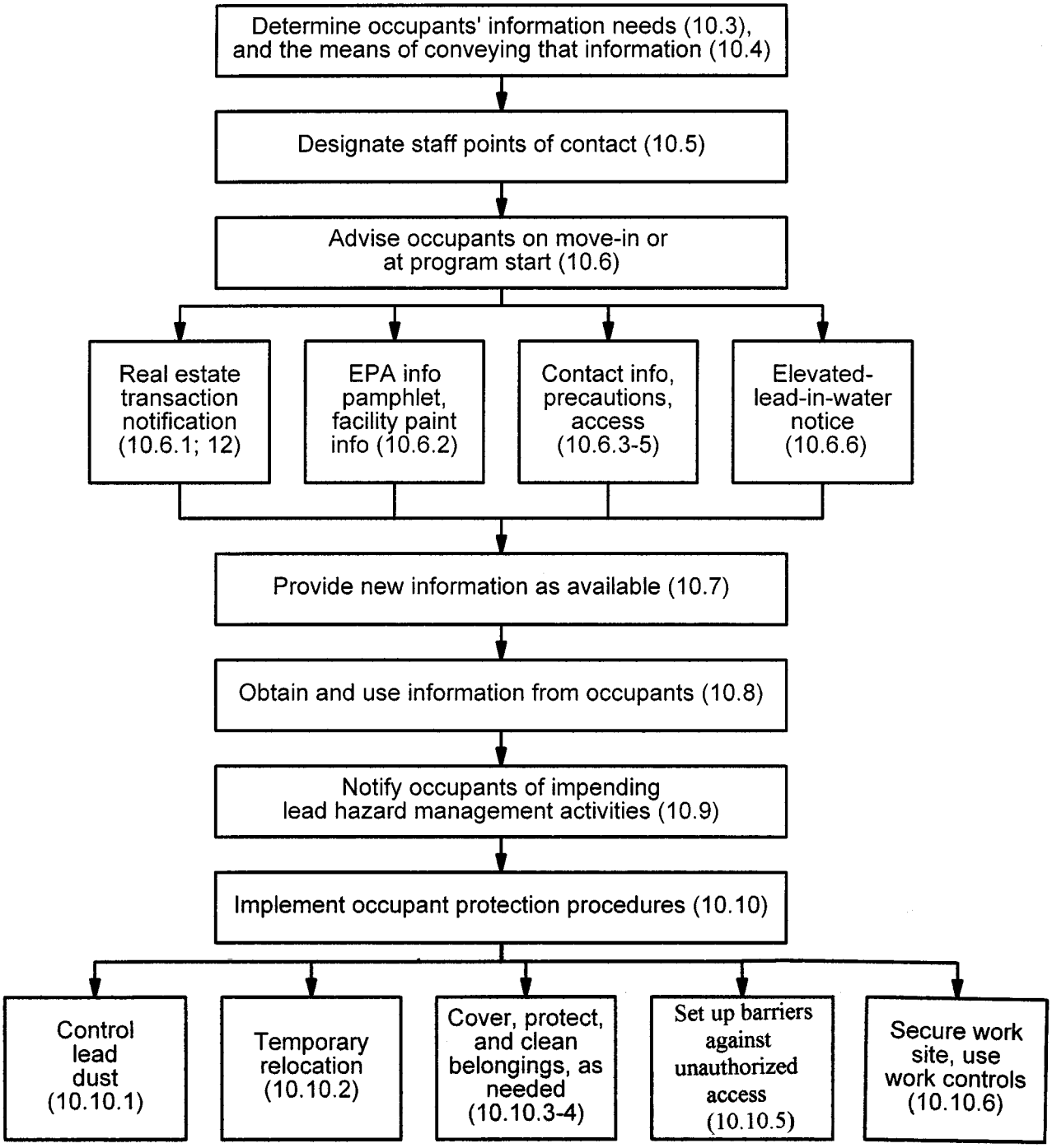

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FIG. 8 Occupant Education and Protection Program

10.8.1 Provide written notice to occupants that they should inform their point of contact of any plans for work that they intend to perform or have others perform that may disturb painted surfaces.

NOTE 8—Examples are TV cable installation, painting, electrical work, minor repairs, and installation work.

10.8.2 Provide written notice to occupants that they should report deteriorating paint and damage to substrates to their point of contact. Ensure that occupants do not fear reprisal for reporting deteriorations or damage.

10.8.3 Ensure that occupant notifications are integrated into the work order system described in Sections 9 and 15.

10.9 Notify occupants of impending lead hazard management activities and any other work that may create additional lead hazards in compliance with regulations and terms of lease. Tell occupants what the hazards are, and how they should

protect themselves, in addition to telling them what the owner will do to protect them. Provide occupants with a copy of the EPA Renovation Pamphlet.

10.10 Develop procedures for protecting occupants and their belongings while work that creates lead hazards is in progress, in accordance with HUD Guidelines, Chapter 8. Integrate them with the contamination control program described in Section 11. The procedures should include:

10.10.1 Controlling lead dust, including minimizing the amount generated and the spread of the dust, and cleaning up the dust.

10.10.2 Temporary relocation away from the room or dwelling unit, as appropriate, until the area has been cleared for reoccupancy.

10.10.3 Covering and protecting belongings which must remain in the work area.

10.10.4 Cleaning belongings to be removed, if they have visible dust or debris, and providing secure storage locations.

10.10.5 Setting up barriers to prevent unauthorized access to the worksite.

10.10.6 Ensuring that appropriate work practice controls are used.

10.11 Consider long-term or permanent relocation of families with children under six and pregnant women from potential sources of lead hazards by matching them with facilities that have been demonstrated to not contain lead hazards. Use lead risk assessments in accordance with Section 7.

10.11.1 Guidance is provided in the Task Force Report.

11. Environmental, Safety, and Health Programs

11.1 Environmental, safety, and health programs for lead hazard management are intended to protect personnel and the environment from lead hazards and related hazards.

11.1.1 The effort required to establish and maintain programs varies greatly according to the nature of the work.

11.1.2 References that can be used to establish programs are listed in 11.2-11.3.2.4.

11.1.3 Fig. 9 is an overview of the implementation of environmental, safety, and health programs.

11.2 *Occupational Health and Safety Program*:

11.2.1 Develop an occupational safety and health program in accordance with HUD Guidelines, Chapter 9, NIOSH Report to Congress and OSHA, state, and local regulations.

11.2.2 Provide competent persons qualified in accordance with Section 17 for all work that disturbs lead. Assign them duties and authority in accordance with 29 CFR 1926.62 and SSPC-QP2.

11.2.3 Provide site-specific occupational safety and health compliance plan, including site-specific training, the nature of hazards at the site, measures for worker protection, and contents of the occupational health and safety plan in accordance with regulations.

11.2.4 Perform sampling and analysis for hazards in accordance with Section 18. Incorporate results of lead hazard evaluations.

11.3 *Environmental Protection Program*:

11.3.1 *Contamination Control Program*:

11.3.1.1 Contamination control procedures are intended to ensure that releases of lead from worksites are prevented or controlled if they do occur.

11.3.1.2 Develop and follow a site-specific containment and monitoring plan in accordance with regulations, HUD Guidelines, and NIBS Specifications, and, as appropriate, CoE Specifications, and CoE Containment or other documents of at least comparable stringency.

11.3.1.3 Develop and follow a monitoring strategy for release of lead contamination from the containment structure or work regulated area using airborne lead and dust sampling in accordance with Section 18.

(*a*) Obtain baseline air, dust, and soil samples, as appropriate. Baseline air samples may be assumed to be below OSHA, state or local action levels in the absence of contrary information.

(*b*) Collect and analyze air and dust wipe samples during the work in accordance with Section 18.

(*c*) Sample after accidents and other events that may have resulted in releases.

11.3.2 *Waste Management Program*:

11.3.2.1 Waste management procedures are intended to ensure that waste handling and disposal comply with regulations and to minimize the potential liability for pollution. The generation of household wastes is exempt from EPA 40 CFR 261 regulations for hazardous wastes, but owners and property managers should determine whether the wastes are exempt from state and local hazardous waste regulations. In practice, users of commercial waste services may have to comply with hazardous waste regulations despite having an exemption.

11.3.2.2 Determine whether building architectural components are exempt from classification as hazardous waste.

11.3.2.3 Develop site-specific waste management plans in accordance with EPA 40 CFR 261, any additional state or local regulations, and HUD Guidelines, Chapter 10 and App. 10. Use NIBS Specifications and CoE Specifications or specifications of at least comparable stringency to develop a framework for the waste management plan.

11.3.2.4 Test wastes in accordance with Section 18.

11.3.2.5 Transport and dispose of wastes in accordance 40 CFR 261-264, 40 CFR 745, and 49 CFR 171-177, as applicable to the waste shipment.

12. Real Estate Transactions

12.1 Real estate transaction procedures are intended to ensure compliance with regulations and protect future occupants by ensuring the full disclosure of known lead hazards and potential sources of lead hazards.

12.1.1 Fig. 10 provides an overview of activities to be undertaken in conjunction with real estate transactions.

12.2 Disclose the presence of known LBP and lead hazards when offering facilities for sale or lease in accordance with Section 10, with particular attention to 10.6.

12.3 Ensure that contracts for the purchase or lease of facilities are written and executed as required by 40 CFR 745 and 24 CFR 35 (see the Disclosure Rule Guidance). Ensure that disclosure procedures have been followed in accordance with 10.6 when purchasing or leasing target facilities.

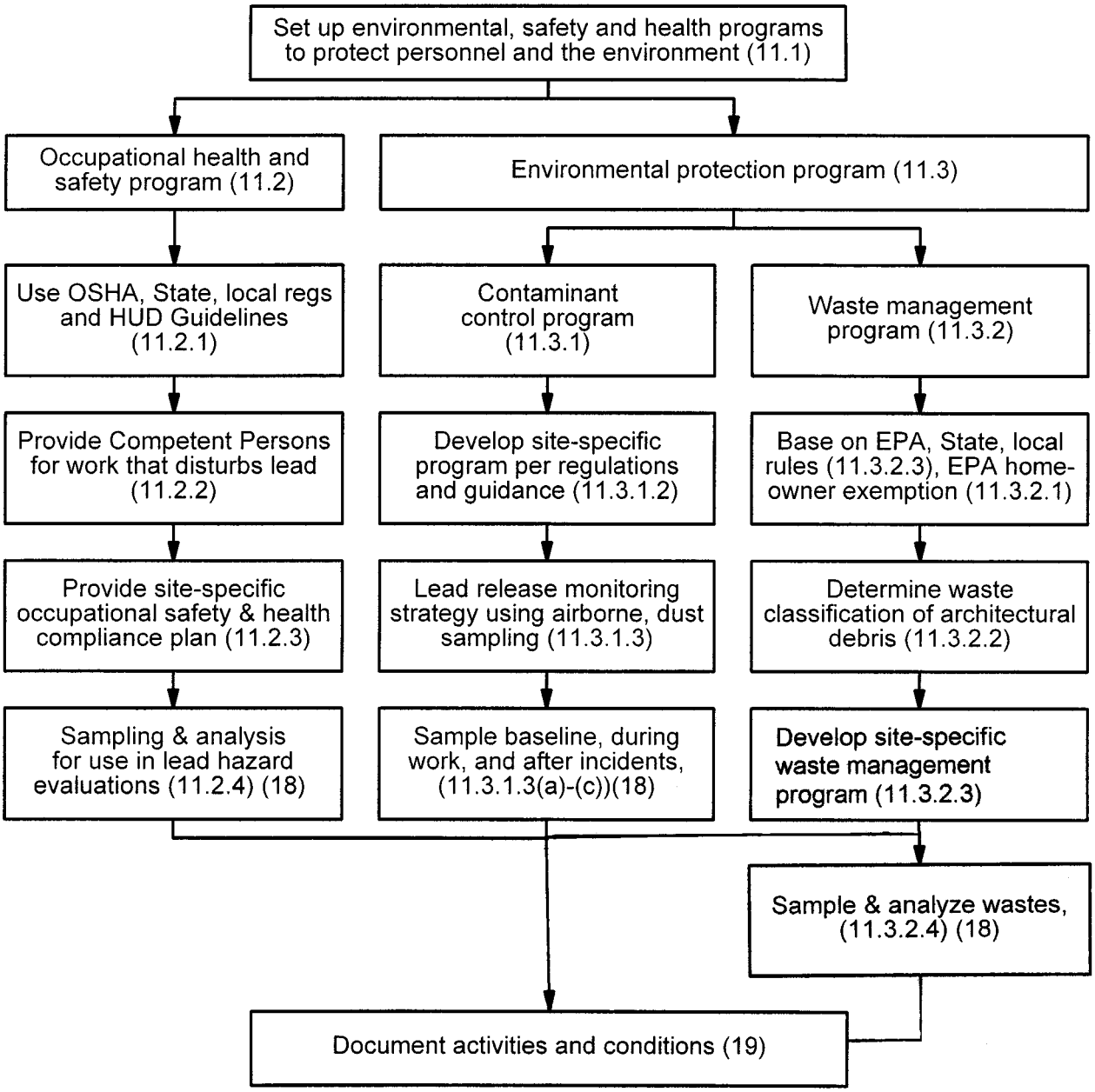

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FIG. 9 Environmental, Safety, and Health Programs

12.4 Before purchasing or leasing vacant land that was previously built on or that has been exposed to significant environmental lead sources, evaluate it for soil lead hazards in accordance with Section 18.

12.5 Before purchasing or leasing facilities classify them in accordance with Section 6, and consider performing lead hazard evaluations in accordance with Section 7.

12.6 As appropriate, restrict the use of facilities to exclude the generation of lead-contaminated dust or require containment of the dust from industrial processes or hobbies which may adversely affect the occupants or, in particular, other occupants or the facility as a whole or to require containment of the dust.

13. Responding to Environmental Intervention Blood Lead Level Cases

13.1 The procedure for responding to the identification of a child with an environmental intervention blood lead level is intended to minimize the harm to the child.

13.2 Respond in accordance with the HUD Task Force Report, CDC Statement, CDC Guidance, and the requirements of the state or local agencies having jurisdiction. Where response actions are not mandated by state or local regulations, consider performing voluntary actions. Use HUD Guidelines Chapter 16 as guidance.

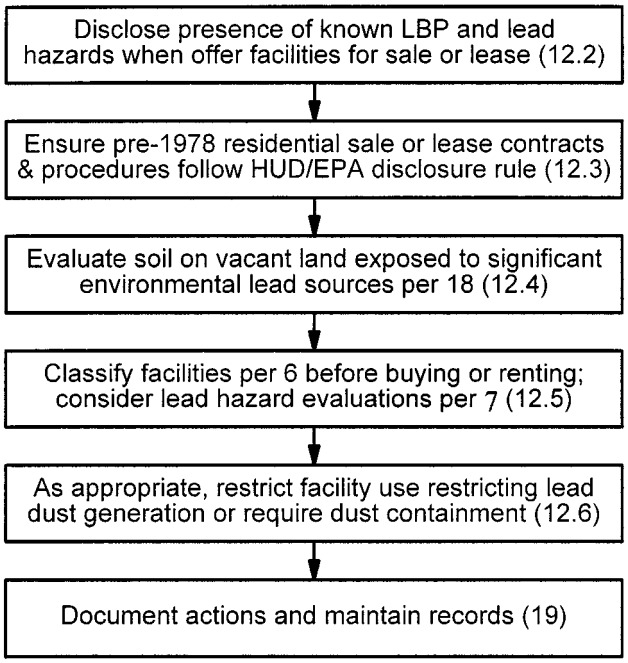

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FIG. 10 Real Estate Transactions

13.3 Perform sampling and analysis in accordance with Section 18.

14. Planning Lead Hazard Control Projects

14.1 Lead hazard control project planning procedures are intended to ensure that lead hazards are effectively controlled, in order of priority, at minimum cost. Lead hazard control projects are intended to control and eliminate lead hazards. These projects address the source(s) of exposure and do not include projects that are intended only to clean up leaded dust or soil without addressing the source(s) of the leaded dust or soil.

14.2 Ensure that lead hazard sources are addressed during control projects; avoid dust cleanup as a control project unless the dust source has been identified and abated.

14.3 Fig. 11 is an example of a planning procedure. Planning guidance is provided in HUD Guidelines, Chapters 12-14, CoE Containment, NIBS Manual, and NIBS Specifications.

14.3.1 Plan projects in accordance with HUD Guidelines and applicable OSHA (29 CFR 1926.62), EPA (40 CFR 261 and 745), DOT (49 CFR 171-177), state, and local regulations and guidance.

14.3.2 Coordinate planning with all agencies having jurisdiction.

14.4 Prioritize Class A and Class B facilities in which lead hazards have been found or are presumed to exist for control work. Give the first priority to facilities currently occupied or planned to be occupied, by children under six or a woman known to be pregnant. Among these, give Class A priority over Class B. Then prioritize according to the following factors; other things being equal, give Class A priority over Class B.

14.4.1 Evaluation findings.

14.4.2 Age and physical condition of the facility.

14.4.3 Presence of environmental sources of lead contamination.

14.4.4 Known existence and number of EBL cases in the neighborhood.

14.4.5 Plans for occupant turnover.

14.4.6 Plans for renovations and repairs for other reasons.

14.5 *Gather Information*:

14.5.1 Identify surfaces and components that require lead hazard control work. Review records and perform leaded paint characterization if necessary for OSHA compliance.

14.5.2 Review condition of structural members, substrate bases, and paint.

14.5.3 Review available records of previous abatement, interim controls, weatherization, rehabilitation, repair, renovation, or maintenance work for information relating to the condition of building components and possible sources of lead hazards that may be exposed by new work.

14.5.4 Review plans or needs for future weatherization, rehabilitation, repair, renovation, or maintenance work with which lead hazard control work might be integrated.

14.6 Develop a selection procedure. Advantages and disadvantages of methods are provided in Appendix X3.

14.6.1 Determine the nature of the project, specifically whether it is to:

14.6.1.1 Be an interim control or abatement, or both; and

14.6.1.2 Involve all or only part of the facility, and, if the latter, which part.

14.6.2 Lead hazard control project methods include:

14.6.2.1 Paint removal using manual, power tool, or chemical methods,

14.6.2.2 Building component removal and replacement,

14.6.2.3 Enclosure,

14.6.2.4 Encapsulation,

14.6.2.5 Paint film stabilization, and

14.6.2.6 Soil control, including:

(*a*) Non-permanent cover, barricades, and signs,

(*b*) Removal and replacement, and

(*c*) Paving.

14.6.3 Determine which methods are usable under constraints imposed by:

14.6.3.1 Regulations that forbid or specify particular methods,

14.6.3.2 Limitations imposed by conditions of funding or insurance, and

14.6.3.3 Physical features inherent in the facility construction:

(a) Integrity of the structure in general and of individual components,

(b) Properties of components and surfaces, such as materials or construction, surface areas, shapes, and accessibility,

(c) Availability of contractors and personnel with suitable skills and experience to properly execute the work, and

(d) Availability of suitable materials for the method and the planned application.

14.6.3.4 Cost factors: lifetime cost, capital equipment costs, personnel training costs, environment, health, and safety costs.

14.6.4 Evaluate other factors:

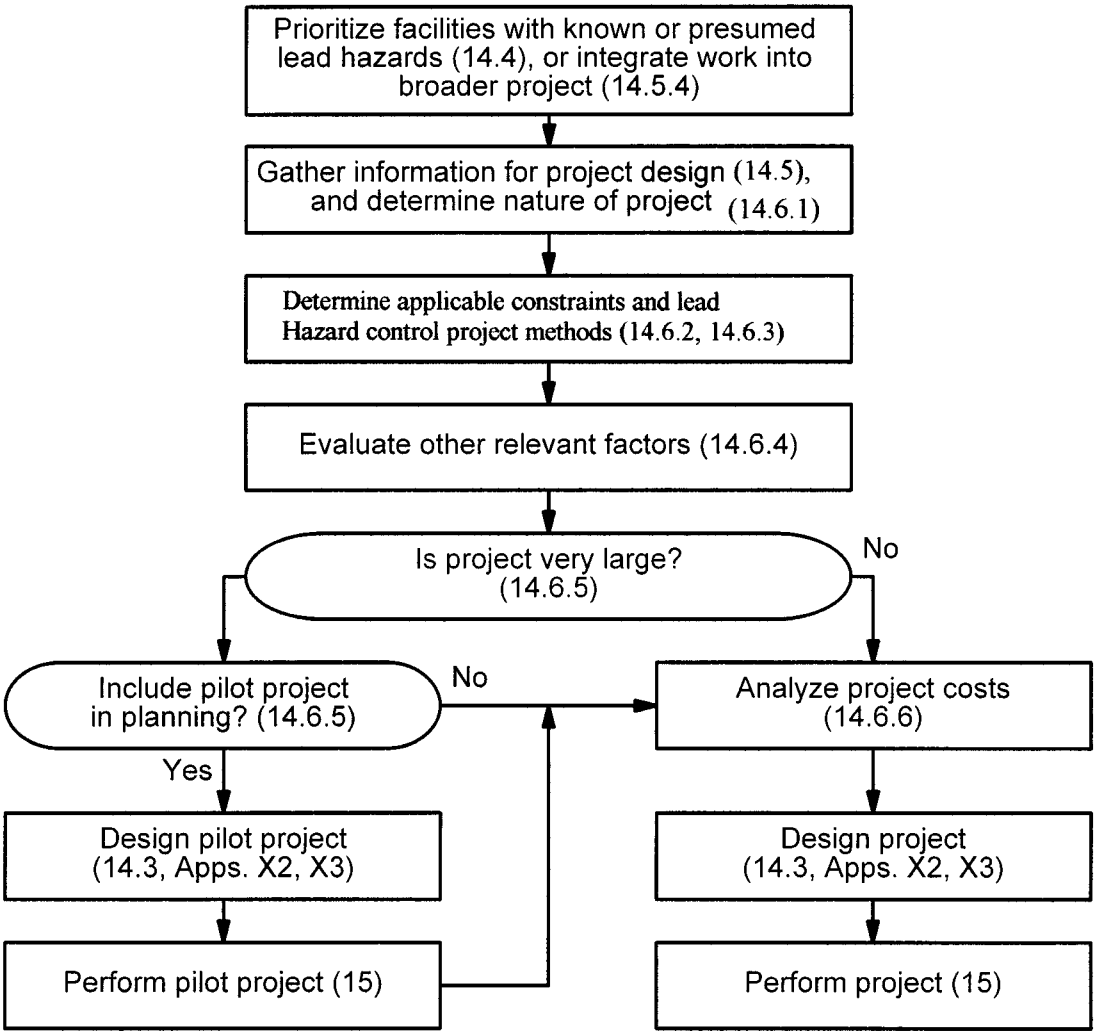

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FIG. 11 Lead Hazard Control Project Planning

14.6.4.1 Savings from reducing lead hazard management program requirements and reduction in potential liability due to removal of sources of lead hazards.

14.6.4.2 Savings from improved energy efficiency.

14.6.4.3 Existing lead conditions and the extent of the lead hazard to be controlled.

14.6.4.4 Effect of changed facility appearance or operation on the rental or sale value of the facility.

14.6.4.5 Plans for future use of the facility, including changes in occupancy and plans for sale or demolition.

14.6.4.6 Plans for projects undertaken for other reasons: for example, renovations, repairs, weatherization, and energy conservation, and the ability to integrate the lead hazard control project into those projects.

14.6.4.7 Temperature or other environmental control requirements for application of a method.

14.6.4.8 Requirements for finish work imposed by a method.

14.6.4.9 The speed of execution of a method.

14.6.4.10 The level of training and experience required by a method.

14.6.4.11 Alternative accommodations for occupants during project execution.

14.6.5 Consider pilot projects for very large jobs to determine the feasibility and effectiveness of proposed methods, requirements for worker protection, the ability of the lead abatement contractor's work to meet clearance standards and waste disposal criteria, and the suitability of the final product.

14.6.6 Analyze project costs.

15. Performing Lead Hazard Control Projects

15.1 Lead hazard control project planning and management procedures are intended to ensure that projects are performed efficiently while minimizing the risk of lead exposures to workers, occupants, and the environment, and in compliance with regulations.

15.1.1 Fig. 12 provides an overview of the process of performing lead hazard control projects.

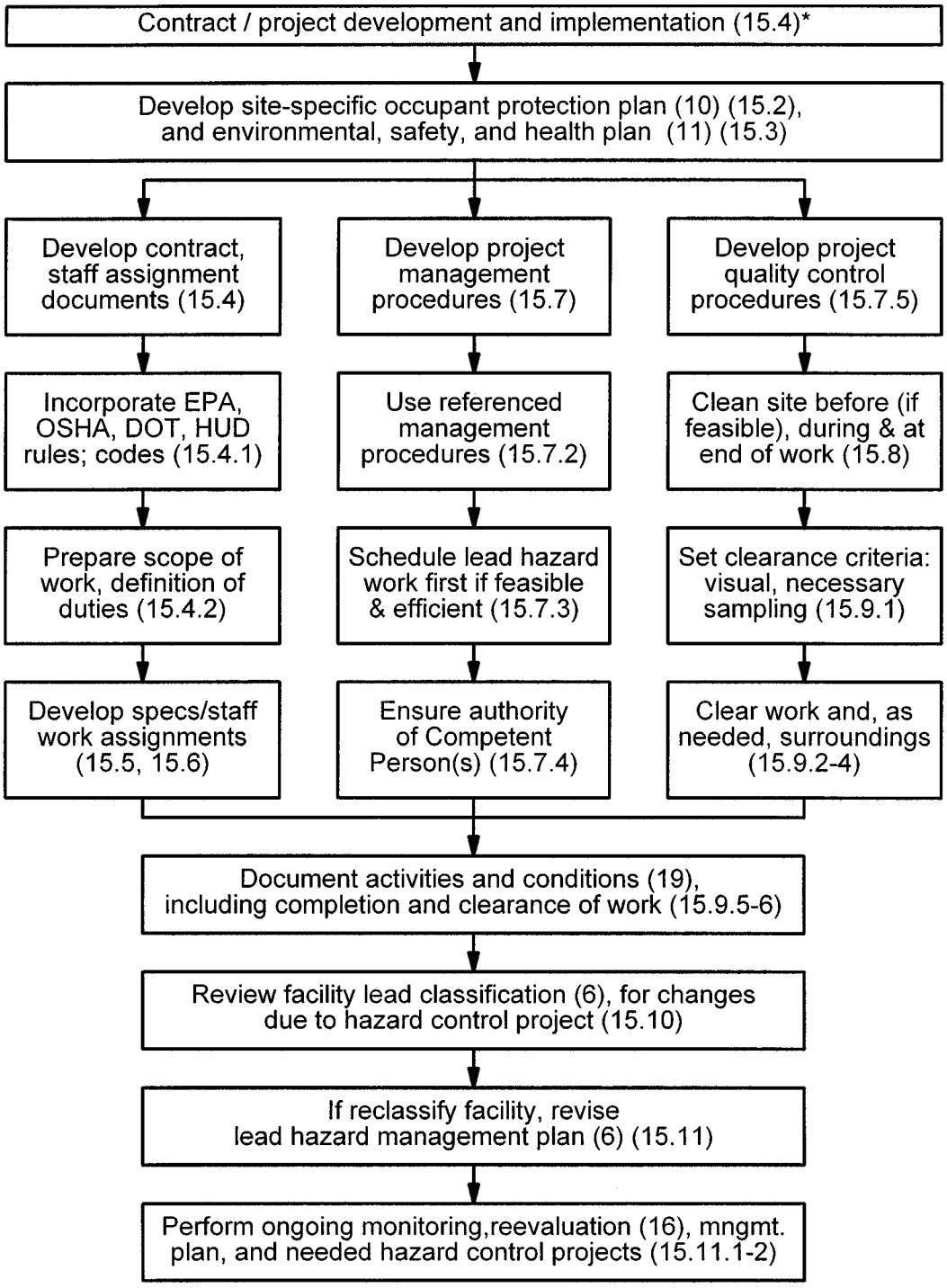

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FIG. 12 Performing Lead Hazard Control Projects

15.2 Develop and follow a site-specific occupant protection plan in accordance with Section 10.

15.3 Develop and follow site-specific environmental, safety, and health plans in accordance with Section 11.

15.3.1 Plan storage and handling arrangements for materials in accordance with applicable codes and regulations.

15.4 Develop and follow contract documents or staff work assignments, as applicable:

15.4.1 Comply with 40 CFR 261 and 745, 29 CFR 1926.62, 49 CFR 171-177, and 24 CFR 35 as applicable. Comply with applicable building, life safety, and fire codes, and regulations for professional engineers and architects.

15.4.2 Prepare a clearly defined scope of work and a clear definition of the duties that the contractor is expected to perform. The scope of work is usually a blend of performance-oriented and prescriptive requirements. It should include, at minimum:

15.4.2.1 Areas of work referenced to drawings,

15.4.2.2 Surfaces and components on which work is to be performed,

15.4.2.3 Methods, tools, equipment, and materials to be used,

15.4.2.4 Surfaces and components to be protected from the work,

15.4.2.5 Hours and days of the week during which work may be performed,

15.4.2.6 Responsibilities for personnel qualification,

15.4.2.7 Responsibilities for environment, safety, and health, including notifications and permits,

15.4.2.8 Demolition, repair, and replacement of deteriorated structural members and components,

15.4.2.9 Inspection of work, and

15.4.2.10 Site security.

15.5 Develop and follow specifications or staff work assignments, as applicable, from the scope of work by combining and modifying provisions of NIBS Specifications, NIBS O&M Manual, CoE Specifications, and sample specifications provided in HUD Guidelines, Apps. 7.2 and 7.3. Comply with manufacturers' recommendations and additional standards, as applicable:

15.5.1 Selection of encapsulant or enclosure products: see Specifications E 1795 and E 1797.

15.5.2 Application of encapsulants: see Guide E 1796.

15.5.3 Bidder qualification procedures: see Section 17.

15.5.4 Control measures: see HUD Guidelines and ASTM standards.

15.5.5 Plumbing fixtures and solder: see the Safe Drinking Water Act Amendment of 1986.

15.6 Prohibit the use of lead-containing paint and find substitutes for it in other applications wherever feasible. Do not use salvaged painted fixtures and moldings.

15.7 *Project Management*:

15.7.1 Project management procedures are intended to ensure that projects are completed on time, within budget, and with the planned effect.

15.7.2 Use the management procedures in HUD Guidelines, NIBS Specifications, and CoE Specifications.

15.7.3 When feasible and efficient, schedule lead hazard control work to be completed before non-lead work starts to minimize the need for worker protection against lead during non-lead work. Schedule work to minimize tenant disruption and in accordance with leases.

15.7.4 Ensure that each person designated as a "Competent Person" under OSHA regulations has the authority to respond to unsafe or unhealthful conditions, including the authority to stop the activities creating these conditions, and to eliminate the hazards.

15.7.5 *Project Quality Control*:

15.7.5.1 Inspect projects in accordance with HUD Guidelines, NIBS Specifications, and CoE Specifications.

15.7.5.2 Qualify personnel, whether staff or contracted, in accordance with Section 17.

15.7.5.3 Review post-award submittals.

15.7.5.4 Perform patch tests of encapsulant systems in accordance with Guide E 1796.

15.7.5.5 Inspect encapsulant applications in accordance with Guide E 1796.

15.7.5.6 Monitor air, dust, and soil lead levels in accordance with Section 11.

15.7.5.7 Monitor implementation and operation of environmental, safety, and health programs. Ensure that a "competent person" is present at all times during the work. Monitor material storage and handling.

15.8 *Worksite Cleaning*:

15.8.1 When feasible, the worksite should be cleaned before work commences in accordance with the HUD Guidelines, Chapter 14.

15.8.2 Collect dust or soil samples, or both, as needed to establish baselines. Archive samples until clearance issues are resolved.

15.8.3 Clean the worksite during the progress of the work, at the end of the work shift, and at the end of the job in accordance with HUD Guidelines, Chapter 14.

15.8.3.1 Coordinate daily cleaning requirements with needs for occupant access to work areas.

15.9 *Clearance Procedures*:

15.9.1 Clearance procedures are intended to establish that lead hazard control work is completed and that levels of lead in dust, air, and bare soil, as applicable, are at or below the maximum allowable levels so that entry to the facility by unprotected workers and for reoccupancy is allowed.

15.9.1.1 Maximum allowable levels of lead in dust and soil are listed in some state or local regulations. Use HUD standards where required by regulations. Use EPA guidance or standards as a minimum standard of care. Interim EPA guidance is provided in 60 FR 47248.

15.9.1.2 Use the action level provided in applicable OSHA or state regulations for maximum allowable level of lead in air.

15.9.1.3 The user may specify lower allowable levels.

15.9.1.4 Perform clearance procedures prior to release of the contractor and reoccupancy of the facility or commencement of other work. Clearance procedures should be performed by the owner's representative.

15.9.2 Perform a visual inspection in accordance with 40 CFR 745 and HUD Guidelines, Chapter 15, to ensure that work is complete. If visible dust or debris is observed, re-clean in accordance with Section 9.

15.9.3 For projects which entail minimal or no disturbance of leaded paint surfaces, use judgment to determine whether sampling is necessary unless it is required by applicable regulations. Use definitions of Level 1 projects in NIBS Specification and HUD Guidelines as guidance. At minimum, perform visual evaluations.

15.9.4 Develop testing designs for testing air, water, dust, surfaces, at and around the work area in accordance with 18.4. Perform clearance sampling and analysis in accordance with HUD Guidelines, 40 CFR 745, and Section 18.

15.9.4.1 In facilities that did not receive a lead risk assessment prior to the work, perform lead risk assessments for clearance in accordance with Section 7.

15.9.5 Obtain a Statement of Lead-Based Paint Compliance if required by regulations or by insurers or lenders. It does not guarantee that no lead hazards will develop after its issuance.

15.9.6 Provide a written clearance report describing the clearance procedure and results and the date for the first ongoing monitoring visit.

15.9.6.1 Document the clearance results for determining that the lead hazard to be controlled by the project has been controlled.

15.9.6.2 Document the clearance results for determining that the work area and other areas affected by the project have been left in occupiable condition with respect to lead issues.

15.9.6.3 Document completion of the work related to lead hazard control.

15.9.6.4 If other work was performed as part of the project, the clearance report should describe its successful completion, particularly if such work could affect present or future lead hazard potentials.

15.10 Perform classification of facilities in accordance with Fig. 3. Review results of classification and reclassify as appropriate.

15.10.1 If the facility is reclassified as Class C, follow 6.9.2.

15.11 If the facility is reclassified as Class A or Class B, revise the lead hazard management plan and continue to implement the program.

15.11.1 Schedule facilities for ongoing monitoring and reevaluation in accordance with Section 16.

15.11.2 Schedule facilities in which lead hazards are known or presumed to continue to exist for further work.

15.11.2.1 Plan maintenance work in accordance with Section 9 and lead hazard control project work in accordance with Section 14.

15.11.2.2 Perform the work in accordance with Section 9 or 15, as applicable.

16. Ongoing Monitoring and Reevaluation

16.1 Ongoing monitoring and reevaluation procedures are used in facilities in which potential sources of lead hazards have not been removed. They are intended to verify that control measures continue to be effective or to detect new lead hazards.

16.1.1 Fig. 13 provides an overview of the process of ongoing monitoring and reevaluation.

16.2 Perform ongoing monitoring and reevaluation in accordance with HUD Guidelines, Chapter 6.

16.2.1 Perform walk-through visual surveys in accordance with HUD Guidelines, Chapters 5 and 6. Inspect at least annually, on occupant turnover, and on any report of damage that could result in significant paint or substrate base deterioration.

16.2.2 Reevaluate facilities, at minimum, in accordance with the protocol and the applicable schedule in HUD Guidelines, Chapter 6. Comply with reevaluation protocols and schedules required by regulations to maintain or renew Statements of Lead-Based Paint Compliance. Include common-use areas.

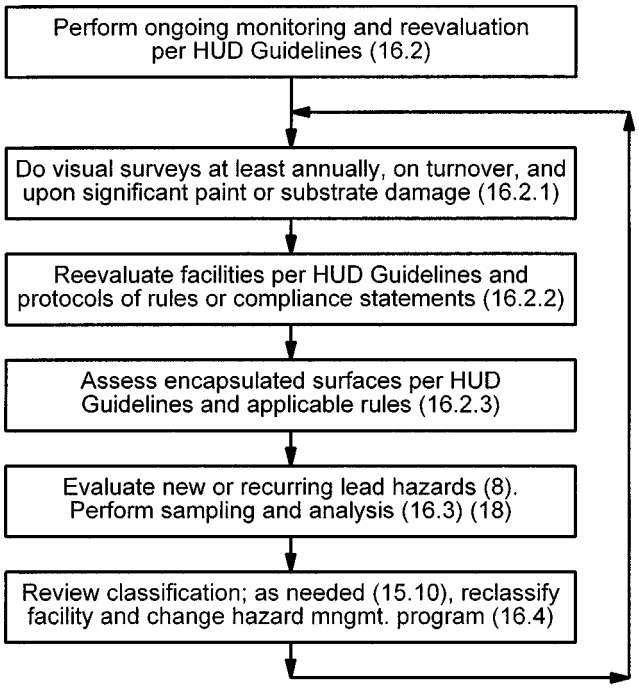

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FIG. 13 Ongoing Monitoring and Reevaluation

16.2.3 Assess encapsulated surfaces in accordance with HUD Guidelines, Chapter 13.

16.3 Evaluate new or recurring lead hazards in accordance with Section 8. Perform sampling and analysis in accordance with Section 18.

16.4 Continue in accordance with 15.10.

17. Qualifying Personnel and Organizations

17.1 Qualification procedures are intended to ensure that personnel are competent to maintain the quality of program functions. They are also intended to ensure compliance with environmental, safety and health regulations, and lead hazard control regulations.

17.1.1 Fig. 14 provides an overview of the process of qualifying personnel and organizations.

17.2 All personnel who support the lead hazard management program should be qualified on the basis of training and, as appropriate, certification or relevant experience.

17.2.1 Qualifications, including initial training, refresher training, and certification must meet applicable regulatory requirements.

17.2.2 Consultants and contractors should be responsible for ensuring that their personnel are trained and certified, as applicable.

17.2.3 Possession of qualifications should be documented.

17.3 *Qualifications for Training Providers*:

17.3.1 Training providers for courses leading to certification should be listed by EPA or the state as qualified training providers. If not, ensure that they have met evaluation criteria listed in 40 CFR 745 and state regulations. Lists of potential training providers are provided in HUD Guidelines, Apps. 5-6.

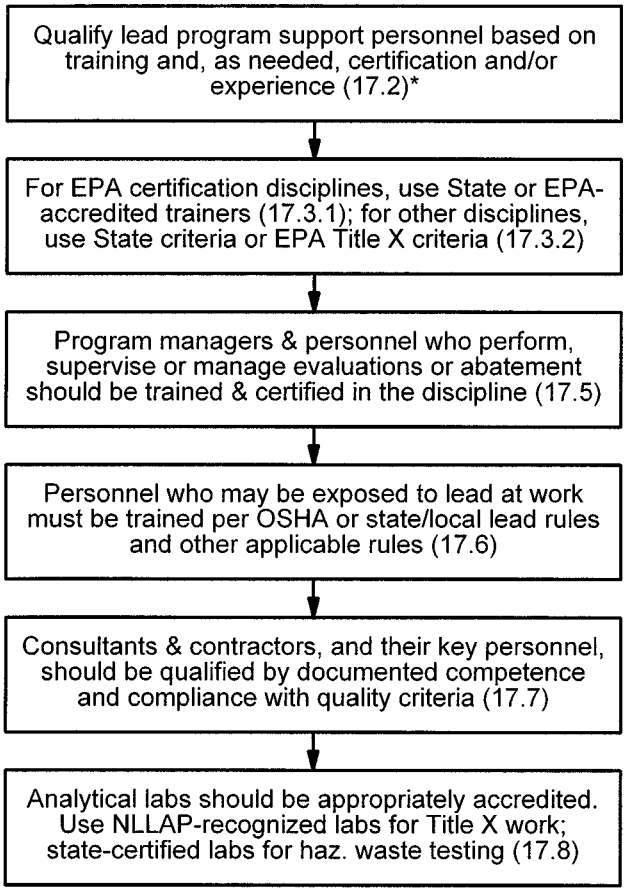

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FIG. 14 Qualifying Personnel and Organizations

17.3.2 Qualify training providers for non-certification training using the evaluation criteria in 40 CFR 745 for principal instructors.

17.4 Follow referenced ASTM standards except where other standards and practices are required by regulations. In that case, use the more stringent of the individual provisions between the required standard and the corresponding ASTM standard.

17.5 *Training and Certification*:

17.5.1 Program managers and personnel who perform, supervise, or manage contracts for lead hazard evaluations or reevaluations should be trained and certified in accordance with 40 CFR 745 or applicable state and local regulations.

17.5.1.1 Paint characterization or lead-based paint inspections: Inspector or Risk Assessor.

17.5.1.2 Risk screens or lead risk assessments, including reevaluations in accordance with Section 16.

17.5.1.3 Lead hazard control clearance testing: Inspector or Risk Assessor.

17.5.2 Personnel who design, supervise, or manage contracts for lead hazard control projects should be trained and certified as Project Designers in accordance with 40 CFR 745 or applicable state and local regulations.

17.5.3 Site supervisors for lead hazard abatement work should be trained and certified as supervisors in accordance with 40 CFR 745 or applicable state and local regulations.

17.5.4 "Competent persons" for all work that disturbs leaded paint should be qualified in accordance with SSPC-QP2 and trained and certified as supervisors in accordance with 40 CFR 745 or applicable state and local regulations.

17.5.5 Personnel employed as workers in abatement or renovation and repair activities requiring certification should be qualified in accordance with SSPC-QP2 and as abatement workers in accordance with EPA 40 CFR 745 or applicable state and local regulations.

17.5.6 If certification is not required for a discipline of interest in the facility's state, consider obtaining personnel who are certified in the discipline in another state.

17.6 *Non-Certification Training*:

17.6.1 All personnel who may be exposed to lead during their work must be qualified and trained in accordance with OSHA or state or local lead and hazard communication regulations for construction or general industry and other regulations that apply to their work.

17.6.1.1 Cleaning personnel assigned to Class A or B facilities should also be trained in accordance with HUD Guidelines, Chapter 14.

17.6.1.2 Personnel who perform maintenance in Class A or B facilities should also be trained in accordance with HUD Guidelines, Chapter 17, incorporating the NIBS Manual and Essential Maintenance Practices discussed in the HUD Task Force Report.

NOTE 9—These personnel should be trained using the EPA-model 8-h course when it becomes available.

17.6.2 Personnel designing or supervising air monitoring should be industrial hygienists or industrial hygiene technicians adequately supervised by a Certified Industrial Hygienist with relevant experience.

17.6.3 Personnel designing occupational health and safety programs should be industrial hygienists, industrial hygiene technicians, or safety professionals adequately supervised by a Certified Industrial Hygienist or a Certified Safety Professional with relevant experience.

17.7 Consulting firms, contracting firms, and their key personnel should be qualified on the basis of their documented competence and compliance with quality criteria. Any portion of their work that is done by others should be placed with firms that are similarly qualified.

17.7.1 Where applicable, firms should be certified or licensed in accordance with 40 CFR 745 or state or local regulations.

17.7.2 Select consultants in a manner consistent with Practice E 1864. Suggested methods may be found in HUD Guidelines, Chapter 2, National Society of Professional Engineers guidance, American Consulting Engineers Council guidance, and American Institute of Architects guidance.

17.7.3 Consultants' duties may include:

17.7.3.1 Training, including curriculum development, tailoring curriculum to client-specific or site-specific conditions, training delivery and training evaluation,

17.7.3.2 Lead hazard evaluation: paint characterization, lead-based paint inspections, risk screens, and lead risk assessments,

17.7.3.3 Developing the Lead Hazard Management Plan and making recommendations for lead hazard control,

17.7.3.4 Preparing contract documents for repair, maintenance, alteration, capital improvements, and so forth,

17.7.3.5 Selecting laboratory, facility management, maintenance, abatement, waste transporter, or waste disposal facility contractors,

17.7.3.6 Lead hazard control project management, site inspection, air monitoring, or clearance testing, and

17.7.3.7 Ongoing monitoring and reassessment.

17.7.4 Prequalification procedures may be established to identify consultants and contractors capable of performing a specific job in accordance with 40 CFR 745, applicable state and local regulations, Practice E 1864, HUD Guidelines, Appendix 7.1, and, for example, CoE Specifications or other documents of at least comparable stringency. Appendix X2 is a list of factors that may be considered.

17.8 Analytical laboratories should bear an appropriate, nationally-recognized accreditation. The use of qualified laboratories and organizations is intended to ensure that data obtained from sampling and analysis will be capable of supporting the decision-making process.

17.8.1 Fixed site testing, field testing, sampling, an analysis should be performed when feasible and must be performed when required by 40 CFR 745 and other applicable regulations, by laboratories and organizations that are recognized as competent under the National Lead Laboratory Accreditation Program (NLLAP). These laboratories are included in the NLLAP List.

17.8.2 Select laboratories that are accredited or state-certified for environmental analysis to perform hazardous waste testing.

18. Sampling and Analysis Procedures

18.1 Sampling and analytical procedures are intended to ensure that data are of sufficient quality to support decision-making throughout the implementation of the lead hazard management program.

18.1.1 Fig. 15 illustrates the decision procedure for sampling and analysis.

18.2 Sampling and analysis for all materials should be performed by qualified laboratories and personnel in accordance with applicable regulations, ASTM standards, or NIOSH or EPA methods.

18.3 Establish data collection objectives that state why the data are needed, the questions which the data will answer, and the decisions which will be made using the data. Determine the level of statistical confidence required. Determine what data will be required for inclusion in reports as required by regulation or contract.

18.4 Develop plans for sampling and analysis required for lead hazard management activities. Use them to avoid the expense of unnecessary repetition due to inadequate quality specifications and to ensure that decisions requiring data collection are considered in planning.

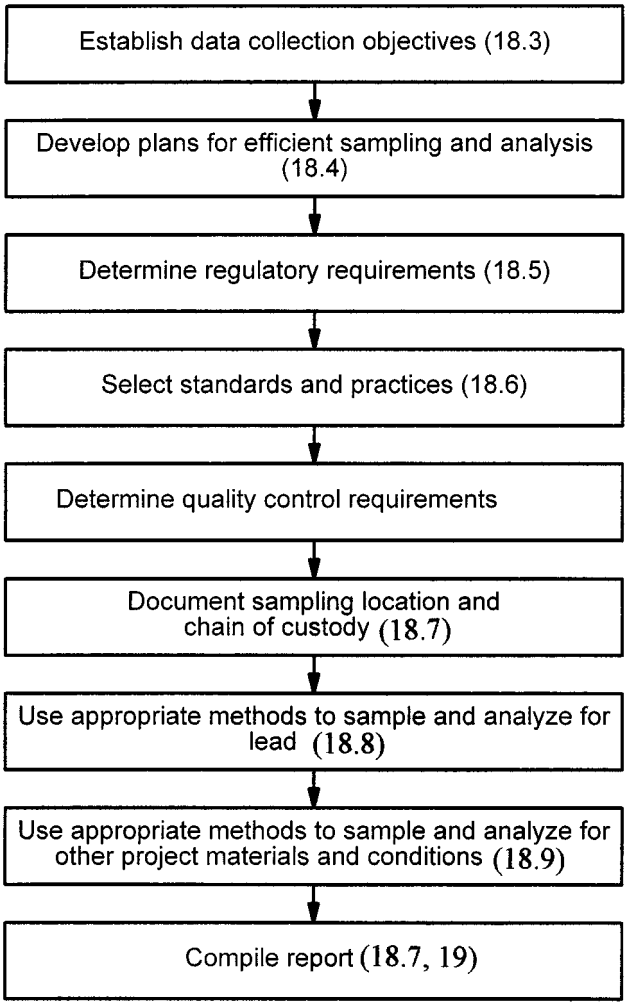

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FIG. 15 Sampling and Analysis

18.5 Determine regulatory requirements for sampling and analytic practices and standards.

18.6 Select appropriate standards and practices for the types of measurements required and to meet data quality objectives and regulatory requirements. Follow applicable ASTM standards whenever possible. Where other standards and practices are required by regulations, use the more stringent of the individual provisions between the required standard and the corresponding ASTM standard.

18.7 Document sampling locations and chain of custody in accordance with Guide D 4840 and Practice E 1864.

18.8 When sampling and analysis are to be performed, use the following methods for lead, as appropriate:

18.8.1 Practices E 1583 and E 1864.

18.8.2 Perform chemical spot test kit measurements of lead in paint in accordance with Practice E 1753 using kits that comply with Guide E 1828.

18.8.3 Collect dust wipe samples in accordance with Practice E 1728 using wipes that comply with Specification E 1792. Collect dust vacuum samples in accordance with Practice D 5438 or Provisional Guide PS 46. Prepare wipe samples in

accordance with Practice E 1644 and vacuum samples in accordance with Practice E 1741 or E 1979, as applicable.

18.8.4 Collect paint chip samples in accordance with Practice E 1729 and prepare them in accordance with Practice E 1645 or E 1979, as applicable.

18.8.5 Collect airborne lead monitoring samples in accordance with Practice E 1553 and OSHA or state and local regulations and prepare them in accordance with Practice E 1741.

18.8.6 Collect soil samples in accordance with Practice E 1727 and prepare them in accordance with Practice E 1726 or E 1979, as applicable.

18.8.7 Collect water samples in accordance with Test Method D 3559 and prepare them in accordance with Practice E 1726.

18.8.8 Perform field analysis of lead using instruments that comply with Guide E 1775.

18.8.9 Use test kits for field measurement of lead in water in accordance with Guide D 5463.

18.8.10 Perform laboratory analysis of paint, dust, soil, and water samples in accordance with Test Method E 1613 or E 2051, as applicable.

18.8.11 Sample and analyze wastes in accordance with EPA 40 CFR 261, state and local regulations, Provisional Guide PS 71, E 1908, and HUD Guidelines, Chapter 10.

18.9 When sampling and analysis are to be performed, use the following methods for other materials, compounds, or hazardous conditions, as appropriate:

18.9.1 Perform sampling and analysis in accordance with applicable regulations and standards, methods, and guidance of ASTM, NIOSH, EPA, or other recognized bodies, and in accordance with current good practice.

18.9.2 Determine whether chemical stripping wastes and waste paints, solvents, and encapsulant coatings are corrosive or flammable hazardous wastes or are toxic hazardous wastes for constituents other than lead. Collect and analyze samples, if applicable, in accordance with EPA 40 CFR 261, state, and local regulations.

19. Documentation

19.1 Documentation procedures are intended to provide a permanent record of how decisions were made and what information they were based on and to confirm that they were carried out as planned.

19.2 Develop a recordkeeping system that accommodates all necessary documentation, provides procedures for identification, collection, indexing, access, filing, storage, maintenance, and disposal of records and a method to ensure that documentation is complete for each lead hazard management activity.

19.2.1 Seek legal advice, as appropriate, to ensure that the content and the organization of records is adequate for legal purposes.

19.2.2 Maintain records as required by 40 CFR 745, 29 CFR 1926.62, 24 CFR 35, and other regulations.

19.2.3 Document oral communications with consultants, contractors, and staffs of agencies having jurisdiction and promptly provide the other party with written confirmation of all important points.

19.3 Retain reports and other information on lead hazards and their sources so that any planned construction or maintenance work can be evaluated for its potential to generate lead hazards.

19.4 Records include:

19.4.1 Maintenance records,

19.4.2 Lead hazard management plan, including SOPs, compliance checklists, and records of changes and updates,

19.4.3 Documentation of prioritization decisions for lead hazard evaluation and control, including criteria used,

19.4.4 Lead hazard evaluation reports and records,

19.4.5 Lead hazard control project lists,

19.4.6 Lead hazard control project records, including contractor submittals,

19.4.7 Records for qualification of personnel, owner's staff, consultants, and contractors,

19.4.8 Occupational health and safety records required by OSHA and state regulations,

19.4.9 Clearance reports,

19.4.10 Waste management records,

19.4.11 Ongoing monitoring and reassessment reports, including records of encapsulation work required by Guide E 1796,

19.4.12 Sampling plans and sampling and analytic records,

19.4.13 Records of EBL investigations and corrective actions, and

19.4.14 Real property records required to support disclosure requirements in accordance with Section 12.

20. Keywords

20.1 building maintenance; facility management; lead abatement; lead-based paint; lead-based paint hazards; lead hazard control; lead hazard evaluation

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES OF INFORMATION FOR PLANNING LEAD HAZARD EVALUATION

X1.1 *Building History*:

X1.1.1 Date of construction and historic status.

X1.1.2 Maintenance, alteration, and renovation history.

X1.1.3 Known evidence or indication of use of lead-containing paint.

X1.1.4 Plans for construction work for reasons other than lead hazard control.

X1.2 *Present Condition of Building*:

X1.2.1 Condition of paint and substrates:

X1.2.1.1 Locations and causes of paint deterioration and damage, and

X1.2.1.2 Accumulations of dust and paint debris.

X1.2.2 Water damage or known maintenance problems that could cause water damage: weather, condensation, plumbing leaks and spills.

X1.2.3 *Exterior*:

X1.2.3.1 Condition of roof, chimneys, and flashing around chimneys and stacks,

X1.2.3.2 Condition of gutters and downspouts and evidence of leaks from them,

X1.2.3.3 Condition of windows and doors, including caulking,

X1.2.3.4 Condition of other exterior components,

X1.2.3.5 Evidence of water ponding on horizontal surfaces and inside windows, such as standing water, moss, mildew, or discoloration,

X1.2.3.6 Condition of foundation, and

X1.2.3.7 Marks or discoloration indicating past flooding.

X1.2.4 *Interior*:

X1.2.4.1 Water marks, discoloration, mildewing, or deterioration of interior surfaces,

X1.2.4.2 Deterioration or discoloring of interior window sills and sashes,

X1.2.4.3 Condition of caulking around tubs and shower enclosures,

X1.2.4.4 Evidence of damaged or leaking plumbing,

X1.2.4.5 Lack of bathroom or stove ventilation, or dryer vent, and

X1.2.4.6 Evidence of recent maintenance, renovation, or repair work that disturbed significant areas of painted surfaces.

X1.2.5 Citations for housing or building code violations within the past year.

X1.3 *Occupancy*:

X1.3.1 Number of children under six and women known to be pregnant,

X1.3.2 Known degree of care of occupants,

X1.3.3 Usage as day-care facility, and

X1.3.4 Known prevalence of EBL cases in neighborhood.

X1.4 *Other Factors*:

X1.4.1 Proximity to potential environmental lead sources,

X1.4.2 Previous or current industrial occupancies or hobbies that may have produced lead contamination (check with health authority),

X1.4.3 Site history, source of soil used for fill, and

X1.4.4 Bare soil, especially with evidence of children's use as play area.

X2. EXAMPLES OF SELECTION FACTORS

X2.1 *Sample Information for Selecting Consultants*:

X2.1.1 Key personnel qualifications and affiliations with professional associations.

X2.1.2 Corporate certifications/licenses required by regulations.

X2.1.3 Job list that includes all previous jobs for a defined period (up to two years for major projects).

X2.1.3.1 Location, dates, and scope of work sufficient to establish the nature and scale of the work.

X2.1.4 Qualifications for others performing part of the work:

X2.1.4.1 Documentation demonstrating same competence and quality.

X2.1.4.2 Laboratory qualification in accordance with Section 10 and Practice E 1583.

X2.1.5 Quality system in accordance with Practice E 1864.

X2.1.6 Status of insurance for professional liability-errors and omissions.

X2.1.7 Insurer's quality of management, financial stability, and reinsurance status.

X2.1.8 Results of reference checks; check at least five selected at random:

X2.1.8.1 Determine referee's relationship to, or duration of association with, consultant and referee's own level of relevant experience.

X2.1.8.2 Determine the main reasons why the consultant was hired among price and qualification criteria. Ask whether the referee would hire the firm again.

X2.1.8.3 Obtain information relevant to qualification criteria including timeliness, credibility, work procedures/practices, knowledge of regulations and specifications, documentation,

housekeeping, quality of management, quality of personnel, communication/cooperation, overall quality.

X2.2 *Sample Information for Selecting Contractors:*[14,15]

X2.2.1 Key personnel qualifications and affiliations with professional associations.

X2.2.1.1 Authority and responsibilities of "Competent Persons" provided in accordance with Section 17.

X2.2.2 Corporate certifications/licenses required by regulations.

X2.2.3 Job list that includes all previous jobs for a defined period (up to two years for major projects).

X2.2.3.1 Location, dates, and scope of work sufficient to establish the nature and scale of the work.

X2.2.3.2 *Related Experience*:

(*a*) *Asbestos Abatement*—Ability to comply with environmental, safety, and health requirements at least as stringent as those required for lead hazard control.

(*b*) *Construction Trades*—Skills relevant to successful installation of control methods, such as painting, carpentry, and so forth.

(*c*) *Weatherization*—Experience in identification and remediation of building moisture problems.

X2.2.4 Qualifications for others performing part of the work.

X2.2.4.1 Documentation demonstrating same competence and quality.

X2.2.5 Quality system in accordance with Practice E 1864.

X2.2.6 Status of insurance for:

X2.2.6.1 Workers' compensation,

X2.2.6.2 General liability specifically endorsed for lead hazard control work to be performed,

X2.2.6.3 Motor vehicle, and

X2.2.6.4 Professional liability insurance for pollution and contamination covering lead hazard control work to be performed.

X2.2.7 Insurer's quality of management, financial stability, and reinsurance status.

X2.2.8 Environmental, safety, and health programs and performance confirmed with agencies having jurisdiction.

X2.2.9 Credit history with material and equipment suppliers, and with Better Business Bureau.

X2.2.10 Bonding capacity.

X2.2.11 Results of reference checks; check at least five selected at random.

X2.2.11.1 Determine referee's relationship to, or duration of association with, contractor and referee's own level of relevant experience.

X2.2.11.2 Determine the main reasons why the contractor was hired among price and qualification criteria. Ask whether the referee would hire the firm again.

X2.2.11.3 Obtain information relevant to qualification criteria, including timeliness, credibility, work procedures/practices, knowledge of regulations and specifications, documentation, housekeeping, quality of management, quality of personnel, communication/cooperation, overall quality.

[14] Adapted from Coluccio, Vincent M., "Selecting a Lead-Based Paint Abatement Consultant" and "Selecting a Lead-Based Paint Abatement Contractor," *Lead-Based Paint Hazards: Assessment and Management*, Van Nostrand Reinhold, 1994, pp. 237-252.

[15] Information obtained from EPA Lead-Based Paint Risk Assessment Model Curriculum, 1995, available from HUD USER, P.O. Box 6091, Rockville, MD 20850.

X3. INFORMATION FOR SELECTING LEAD HAZARD CONTROL PROJECT METHODS

X3.1 *Can the method be used for the control project?*

X3.1.1 Substrate material

(a) Is the method suitable for porous surfaces such as wood or brick?

(b) Is the method suitable for metal surfaces?

(c) Is the method suitable for plaster surfaces?

(d) Is the method suitable for paper-covered surfaces such as gypsum board or wallpaper?

(e) Is the method suitable for complex surfaces such as moldings?

X3.1.2 Substrate condition

(a) Is an intact substrate required?

(b) If the substrate is deteriorated, will the method replace or repair it?

(c) Does the method rely on how well the layers of coating under the surface hold together? If so, can they be expected to hold together for the life of the application?

(d) Can the method itself damage the substrate?

X3.1.3 Effect on other components

(a) Does the method damage metal hardware? If so, can the hardware be easily detached and replaced?

(b) Does the method damage nearby components or finishes? If so, is it feasible to protect them?

X3.1.4 Historic buildings

(a) Do the applicable regulations permit the use of the method?

X3.2 *Will the end results meet requirements?*

X3.2.1 Removal of lead hazards and their sources

(a) Does the method remove major sources of lead hazards?

(b) Does the method leave lead residues in porous surfaces?

X3.2.2 Finish

(a) Does the method produce a smooth, cleanable surface?

(b) Does the method provide a clean surface for refinishing?

X3.2.3 Appearance

(a) Does the method match the existing appearance if this is required?

(b) Does the method improve the appearance of the facility?

X3.2.4 Life expectancy and need for monitoring

(a) Does the method have a reasonable life expectancy?

(b) Does the method require ongoing monitoring and re-evaluation?

(c) Is the method vulnerable to water damage?

X3.3 *What are the cost and time factors?*

X3.3.1 Application

(a) How fast is the method?

(b) How labor-intensive is the method?

(c) What are the capital equipment costs?

(d) Must the method be field-tested on the substrate?

(e) Is the number of steps or applications predictable in advance?

(f) How sensitive is application to weather, temperature, or humidity?

(g) How easy is it to integrate the method into rehab/renovation work?

X3.3.2 Skill and experience

(a) What skills and level of skill are required for a reliable result?

(b) Are adequately-trained personnel available? If not, are trainable personnel available?

(c) Is adequate training available within a reasonable time and at a reasonable cost?

X3.3.3 Environmental, safety, and health requirements

(a) What level of site preparation and containment are required?

(b) How much hazardous waste does the method produce?

(c) How much other waste does the method produce?

(d) What are the airborne lead levels? What protective measures are required?

(e) What other chemical hazards are there? What protective measures are required?

(f) What are the physical hazards, such as fire, tripping and falling, or electrical? What protective measures are required?

X3.3.4 Potential savings

(a) Does the method improve energy efficiency?

(b) Does the method offer other operating and maintenance savings, such as in cleaning and minor repairs?

X4. GUIDANCE FOR SMALL OWNERS AND OWNER-OCCUPIERS

X4.1 Small owners and owner-occupiers may be able to simplify the elements of the lead hazard management program described in Sections 9-19. This may be due to such factors as fewer regulatory requirements or regulatory exemptions or having no employees. Each element should be included in their programs in some form, possibly for personal safety or as a requirement for others hired to perform program functions.

X4.2 Small owners and owner-occupiers will usually hire consultants to evaluate lead hazards, recommend and oversee control measures, and perform reevaluations. They will usually hire contractors for major lead hazard control projects. It is useful to them to understand the corresponding sections in order to choose what they want to do, choose the people and organizations to do it, and evaluate whether the work has been performed properly.

X4.3 Small owners and owner-occupiers should consider using each section as follows:

X4.3.1 Section 6: Determine which, if any, of their facilities pose a significant risk of harmful lead exposure to children under six or to pregnant women.

X4.3.2 Section 7: Determine what sort of evaluations the consultant should do.

X4.3.3 Section 8: Plan how to manage lead hazards, even if not formally documented.

X4.3.4 Section 9: Establish maintenance and cleaning procedures.

X4.3.5 Section 10: Use for educating themselves and other residents.

X4.3.6 Section 11: Use for their personal health protection, even when they have no employees.

X4.3.7 Section 12: Use for real estate transactions (selling or leasing).

X4.3.8 Section 13: Determine their own responsibilities in the event of an elevated blood lead (EBL) case, in consultation with the local health department.

X4.3.9 Section 14: Evaluate the control methods proposed by consultants or contractors.

X4.3.10 Section 15: Have contractors use this section to perform control projects.

X4.3.11 Section 16: Have consultants use this section on an ongoing basis.

X4.3.12 Section 17: Select and confirm the qualifications of consultants, contractors, and laboratories.

X4.3.13 Section 18: Have consultants use this section to sample and analyze materials.

X4.3.14 Section 19: Document decisions and activities.

X4.4 *References*:

X4.4.1 The EPA/HUD/CPSC Information Pamphlet and EPA Renovation Pamphlet are simple introductions to lead hazards and provide basic methods for controlling them.

X4.4.2 The HUD Guidelines provide the most comprehensive single-volume guidance.