Chapter 6: Ongoing Monitoring

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Ongoing Monitoring: How To Do It

1. Ongoing monitoring is required in all dwellings where lead-based paint is known or suspected to be present, regardless of the paint's present condition. Ongoing monitoring is not required in dwellings that are known to be free of lead-based paint.

2. Ongoing monitoring consists of reevaluations performed by certified risk assessors *and* visual surveys conducted by owners.

3. Reevaluations should be performed in accordance with the Standard Reevaluation Schedules contained in this chapter. The schedules differ based on the probability that lead-based paint hazards will reappear in a given dwelling. High-risk dwellings will require more frequent reevaluations.

4. When performing a reevaluation, risk assessors should do the following:

   - Review any previous risk assessment, paint inspection, clearance examination, or reevaluation report.
   - Conduct a visual examination of all existing lead-based paint hazard controls, *all* surfaces that are known or suspected to be coated with lead-based paint, and any soil. Any necessary repairs should be completed *before* dust sampling.
   - Collect at least two composite dust-wipe samples, one from the floors and the other from either the window troughs or the interior window sills. Each composite sample should contain no more than four subsamples. The sampling locations should be selected using the criteria in Chapter 5 and based on the professional judgment of the risk assessor.
   - Document the presence or absence of lead-based paint hazards in the reevaluation report and indicate when the next reevaluation (if any) should be scheduled (based on Table 6.1).

5. Visual surveys should be conducted by owners or their representatives at the following times:

   - Whenever the owner receives a resident complaint.
   - Whenever the dwelling turns over or becomes vacant.
   - Whenever significant damage occurs (i.e., flooding, vandalism, fire, etc.).
   - At least once every year.

6. When conducting a visual survey, the owner should examine all painted surfaces, all lead-based paint hazard controls, and all ground cover. Chapter 5 contains information on how to recognize lead-based paint hazards. The results of the visual survey and any corrective measures being taken should be documented.

Chapter 6: Ongoing Monitoring

I. Purpose

If lead-based paint is not in a hazardous condition and dust and soil lead levels are below the levels listed in Table 5.7, no hazard is present and no active control measures are necessary. However, paint can deteriorate through normal use and maintenance activity, thereby releasing dust and contaminating soil. Therefore, ongoing monitoring is necessary in *all* dwellings in which lead-based paint is known or suspected to be present. This applies both to dwellings that pass clearance tests after hazard control, as well as dwellings where an initial risk assessment found no lead-based paint hazards, but where lead-based paint may be present. In both cases, the potential exists for lead-based paint hazards to develop since hazard control methods can fail, previously intact lead-based paint can become deteriorated, and leaded dust can reaccumulate through friction, impact, or the introduction of exterior dust and soil. This chapter describes recommended procedures for managing lead-based paint so that it remains controlled and in a nonhazardous condition.

The ongoing monitoring procedures described in this chapter generally do not apply to dwellings found to contain *no* lead-based paint and where the levels of lead in dust and soil are below applicable standards. While it is conceivable that dwellings that contain no lead-based paint could develop elevated levels of leaded dust from other sources, HUD does not believe that ongoing monitoring of dust lead levels in all dwellings is warranted at this time. In other words, dwellings that are not suspected of containing lead-based paint are thought to be at relatively low risk.

Ongoing monitoring includes two different activities:

- Reevaluation.
- Annual Visual Surveys.

A. Reevaluation

In general terms, a reevaluation is a risk assessment that includes more limited soil and dust sampling, and a detailed visual examination of paint films and any existing lead hazard controls (such as enclosures). The reevaluation should be conducted by a certified risk assessor and should include both a visual examination and environmental sampling for lead-contaminated dust (and sometimes soil). Reevaluations are performed only in dwellings where lead-based paint is known or expected to exist, or where lead-based paint *hazards* have been found to be nonexistent (i.e., where a previous risk assessment, risk assessment/inspection combination, or clearance examination have shown the dwelling to be free of lead-based paint hazards).

Reevaluation occurs at specific intervals, which are specified in Section II below. These schedules are based on the likelihood of lead-based paint hazards reappearing. For example, low-risk dwellings require only infrequent reevaluations while high-risk dwellings should be reevaluated more frequently. The schedules are based on dwelling-specific criteria (e.g., types of hazards found, control actions taken, prior reevaluation results). This chapter also includes a section on a Reevaluation Protocol.

B. Annual Visual Surveys

Reevaluations are supplemented with visual surveys by the owner (or owner's representative), which should be conducted at least once a year. Visual surveys do not replace reevaluations. The goal of visual surveys is to confirm that:

- Painted surfaces with known or suspected lead-based paint are not deteriorating.
- Control methods such as encapsulation and enclosure have not failed.
- Structural problems (e.g., water leaks) do not threaten the integrity of any remaining known or suspected lead-based paint.

Visual surveys should also be conducted whenever the owner receives complaints from residents about potential lead hazards, the dwelling turns over or becomes vacant, or significant damage occurs that could affect the integrity of control treatments (e.g., flooding, vandalism, fire). Property owners are responsible for ensuring that these annual visual surveys are completed. Owners need not use a certified risk assessor to conduct the visual survey, unless required by local law.

Chapter 5 contains information on how to visually evaluate the condition of paint. Only paint that is found to be in "poor" condition—using the surface area criteria in Table 5.4—needs to be addressed, although paint in "fair" condition will probably become "poor" if not stabilized promptly. In addition, Chapter 11 describes some of the structural problems that could cause premature paint failure.

If visual surveys are done with care, the subsequent reevaluation will not find any deteriorated paint or failed hazard control treatments, thereby substantially reducing the cost to the owner.

C. Ongoing Maintenance and Management Practices

Owners should maintain all dwellings in good condition by following the maintenance and management practices described in Chapters 11 and 17. Such practices include:

- High-efficiency particulate air (HEPA) vacuuming, wet mopping, and cleaning of floors, window troughs, and interior window sills at turnover.
- Providing lead-based paint hazard information to new residents.
- Installing a washable doormat inside the primary entrance to the unit or inside entrances to a multifamily building.
- Maintaining ground cover.
- Encouraging residents to report any signs of paint deterioration or failure of hazard control treatments.

D. Dwellings Exempt From Ongoing Monitoring

Monitoring can be discontinued when any one of the following has occurred:

- A combined risk assessment/inspection determines no lead-based paint is present in the unit, and soil and dust levels are below applicable limits.
- All building components with lead-based paint are removed and/or all lead-based paint is abated and a risk assessor or inspector technician determines that soil and dust lead levels are below applicable limits.
- All reevaluations specified in Table 6.1 are completed; such dwellings are then subject only to annual visual surveys. (Reevaluation exemptions cannot be transferred from one owner to another, since maintenance and management activities often change with new ownership.)

II. Standard Reevaluation Schedules

The Standard Reevaluation Schedules (SRS) describe how frequently a certified risk assessor should reevaluate a dwelling. If a property owner wants or needs written verification, such as a Statement of Compliance, this schedule may determine the expiration date of the Statement, depending upon applicable regulations.

The potential for the development of lead hazards varies from dwelling to dwelling, depending upon the nature of the hazards detected, the hazard controls implemented, and the risk assessment and reevaluation results. Different reevaluation strategies are needed to respond to each specific unit. Risk assessors should follow a Standard Reevaluation Schedule when making recommendations to owners.

A. How To Use the Schedules

Risk assessors conducting an initial evaluation should consult the SRS in Table 6.1 and inform the property owner of the reevaluation

implications of different hazard control strategies, since this will provide the owner with important information on long-term costs. For each dwelling the risk assessor should determine which schedule applies by reviewing the "Evaluation Results" column and "Action Taken" column. For those situations where more than one schedule applies, the risk assessor should choose the most conservative schedule (i.e., the one that calls for the greatest number of reevaluations) or, if the number of reevaluations is the same, the risk assessor should choose the applicable schedule calling for reevaluation at the earliest date. For the purposes of Table 6.1, the term "evaluation" includes: (1) a risk assessment (or lead hazard screen) before hazard control, (2) a risk assessment conducted at the time of clearance (if the owner has bypassed a risk assessment before hazard control), (3) a reevaluation, or (4) an evaluation of a dwelling housing a child with an elevated blood lead level. The results of the visual assessment and soil and dust tests collected as part of this combined clearance/risk assessment evaluation should be used to determine the appropriate schedule in Table 6.1.

For example, consider a unit that falls into Schedule 3 (i.e., a risk assessor finds dust levels that are greater than the applicable standard, but by less than a factor of 10, and detects deteriorated paint that contains lead above the standard). The owner chooses to stabilize the paint and remove the dust using the procedures in Chapter 11. In this case, the unit should be reevaluated after 1 year. If the reevaluation detects no hazards, a final reevaluation should be performed 2 years later. If the unit successfully passes every reevaluation, only annual visual surveys are needed thereafter. If the unit fails any reevaluation (i.e., lead hazards are found), then the findings of the reevaluation combined with the action taken will dictate which schedule should be applied.

For a unit in Schedule 2, only one reevaluation at the end of 3 years is required; if no hazards are found, no further reevaluations are needed. Only annual surveys by the owner should be done.

B. Principles on Which the Schedules Are Based

The varying reevaluation intervals prescribed by the schedules have been determined by considering the likelihood that a dwelling contains or will contain lead-based paint hazards. Dwellings with a lower probability of developing lead-based paint hazards (either because no hazards were found or all hazards were dealt with through long-term abatement methods) are subject to fewer reevaluations and a less frequent reevaluation schedule than dwellings with a higher probability of developing such hazards. Dwellings in which short-term interim controls were instituted and/or where high levels of interior leaded dust have been found are subject to shorter reevaluation intervals and a greater number of reevaluations. Once the specified reevaluations are successfully completed, only visual monitoring is needed.

The schedules are based on the following principles:

- Explicit reevaluation intervals are needed to ensure consistency across dwellings and to provide clear criteria for risk assessors in determining when a unit should be reevaluated.
- Dwellings that pass a risk assessment or reevaluation require less frequent reevaluations than dwellings that fail.
- The presence of leaded dust in excess of applicable standards shortens the reevaluation interval since it indicates an immediately available source of exposure for occupants, especially children.
- The expected duration of hazard control actions affects the reevaluation interval; less frequent reevaluation is needed when more permanent abatement methods are implemented over interim controls that have a shorter lifespan. For example, a longer reevaluation interval is specified when windows with lead-based paint are replaced in order to provide an incentive for permanent abatement, since windows are thought to be significant sources of leaded dust.

- If all lead hazards are controlled through encapsulation or enclosure (and leaded dust levels prior to hazard control were below the standard), then only annual visual surveys are recommended because failure of these methods is usually obvious.
- Repeated reevaluation failures will result in the assignment of the shortest possible reevaluation interval and may be an indication that the selected hazard control measures are inadequate for the unit in question.
- Full removal of all lead-based paint requires no reevaluation or monitoring, since new hazards are very unlikely.

III. Reevaluation Protocol

This section discusses how reevaluations should be conducted. Reevaluations determine if the following conditions have reappeared:

- Leaded dust above applicable standards.
- Deteriorated paint films with known or suspected lead-based paint.
- Deteriorated or failed interim controls, or encapsulant or enclosure treatments.
- New bare soil with lead levels above applicable standards.

These conditions can be detected through a visual examination, as well as through the use of limited dust and soil sampling.

A. Visual Examination

The certified risk assessor conducting the reevaluation should begin by reviewing any past risk assessment, paint inspection, clearance, and reevaluation reports. If other information describing the lead hazard control actions in use is available, this information should also be reviewed. A careful visual examination of all control measures and any known or suspected lead-based paint should then be conducted to determine if the paint is still intact and the controls are well maintained. If any lead hazard control measure is failing (e.g., an encapsulant is peeling away from the wall, a painted surface is no longer stabilized, or an enclosure has been breached), the risk assessor conducting the reevaluation should identify acceptable options for controlling the hazard.

If a paint inspection was conducted previously, the risk assessor should use this information to discover whether any of the surfaces known to contain lead-based paint are now in a deteriorated condition. If no inspection has occurred, then the assessor should assume that all painted surfaces contain lead-based paint and should consider any deteriorated paint to be a newly identified lead hazard. Alternatively, the deteriorated paint can be measured by x-ray fluorescence (XRF) or paint-chip laboratory analysis as described in Chapters 5 and 7.

B. Dust Sampling

When all lead hazard controls appear to be in place from a visual examination, the risk assessor can begin dust sampling. If lead hazard controls are not in place, they should be repaired before any dust sampling occurs. Dust measurements are intended not only to determine the effectiveness of the control measures in use, but also to determine if leaded dust has reaccumulated from other sources.

For reevaluations, composite dust sampling is encouraged as a cost-effective measure. At least two composite samples should be taken, one from floors and the other from either interior window sills or window troughs. The rules on composite dust sampling can be found in Chapter 5.

Samples should be collected from the locations identified in Chapter 5, or from any other area that, in the professional judgment of the risk assessor, may contain elevated leaded dust levels.

C. Soil Sampling

Soil sampling is not usually conducted for reevaluation, since the visual examination will discover if previously covered areas are now bare or if the interim controls implemented to cover soil are not working. If bare spots are identified, the risk assessor should recommend

that the owner cover the bare spots and conduct more frequent (e.g., monthly) visual surveys to ensure that the soil stays covered. If the visual surveys indicate that soil is not staying covered, more permanent soil treatments should be recommended (i.e., paving or removal).

D. Newly Identified Hazards

Since the risk assessor must document the presence or absence of any lead-based paint hazards, both new hazards and previously controlled hazards should be investigated. If deteriorated paint is discovered and no previous information exists about the lead content of the paint (or the information is inconclusive), the risk assessor should recommend that the spot either be tested or stabilized. If the paint contains lead above the applicable standard, the risk assessor should provide the owner with a range of interim control and abatement options.

E. Reevaluation Results

The risk assessor conducting the reevaluation should produce a report documenting the presence or absence of lead-based paint hazards. The report should identify any lead hazards previously detected and controlled and the efficacy of these interventions. Any new hazards should also be described and the risk assessor should present the owner with suggested control options and their accompanying reevaluation schedules. In all cases the report should identify when the next reevaluation should occur, if further monitoring is necessary.

F. Sampling in Multifamily Dwellings

Reevaluations in multifamily dwellings should target different units than those sampled previously. The criteria for worst-case sampling discussed in Chapter 5 should be used for this purpose.

IV. Compliance Verification

Some property owners may choose or be required (e.g., by an insurance company or State or local government) to obtain documentation that the housing unit remains in compliance with established standards. To document such compliance, every reevaluation should be performed on schedule by a licensed, independent risk assessor who should provide the owner with a Statement of Compliance. For those dwellings subject to periodic reevaluation (see Table 6.1) the duration of the Statement could be set according to the prescribed SRS interval, depending on local laws and the specific underwriting standard. Alternatively, after a record of compliance has been established, regulators or underwriters could simply require reevaluations at 10-year intervals.

Table 6.1 Standard Reevaluation Schedules

Schedule	Evaluation Results	Action Taken	Reevaluation Frequency and Duration	Visual Survey (by owner or owner's representative)
1	Combination risk assessment/inspection finds no leaded dust or soil and no lead-based paint.	None.	None.	None.
2	No lead-based paint hazards found during risk assessment conducted before hazard control or at clearance (hazards include dust and soil).	None.	3 Years.	Annually and whenever information indicates a possible problem .
3	The average of leaded dust levels on all floors, interior window sills, or window troughs sampled exceeds the applicable standard, but by less than a factor of 10.	A. Interim controls and/or hazard abatement (or mixture of the two), including, but not necessarily limited to, dust removal. This schedule does not include window replacement.	1 Year, 2 Years.	Same as Schedule 2, except for encapsulants. The first visual survey of encapsulants should be done one month after clearance; the second should be done 6 months later and annually thereafter.
		B. Treatments specified in section A plus replacement of all windows with lead hazards.	1 Year.	
		C. Abatement of all lead-based paint using encapsulation or enclosure.	None.	Same as Schedule 3 above.
		D. Removal of all lead-based paint.	None.	None.
4	The average of leaded dust levels on all floors, interior window sills, or window troughs sampled exceeds the applicable standard by a factor of 10 or more.	A. Interim controls and/or hazard abatement (or mixture of the two), including, but not necessarily limited to dust removal. This schedule does not include window replacement.	6 Months, 1 Year, 2 Years.	Same as Schedule 3.
		B. Treatments specified in section A plus replacement of all windows with lead hazards.	6 Months, 2 Years.	Same as Schedule 3.
		C. Abatement of all lead-based paint using encapsulation and enclosure.	None.	Same as Schedule 3.
		D. Removal of all lead-based paint.	None.	None.

Table 6.1 Standard Reevaluation Schedules (continued)

Schedule	Evaluation Results	Action Taken	Reevaluation Frequency and Duration	Visual Survey (by owner or owner's representative)
5	No leaded dust or leaded soil hazards identified, but lead-based paint or lead-based paint hazards are found.	A. Interim controls or mixture of interim controls and a batement (not including window replacement).	2 Years.	Same as Schedule 3.
		B. Mixture of interim controls and abatement, including window replacement.	3 Years.	Same as Schedule 3.
		C. Abatement of all lead-based paint *hazards*, but not all lead-based paint.	4 Years.	Same as Schedule 3.
		D. Abatement of all lead-based paint using encapsulation or enclosure.	None.	Same as Schedule 3.
		E. Removal of all lead-based paint.	None.	None.
6	Bare leaded soil exceeds standard, but less than 5,000 µg/g.	Interim controls.	None.	Three months to check new ground cover, then annually to identify new bare spots.
7	Bare leaded soil greater than or equal to 5,000 µg/g.	Abatement (paving or removal).	None.	None for removal, annually to identify new bare spots or deterioration of paving.

See notes to table 6.1 on following page.

Notes to Table 6.1:

1. When more than one schedule applies to a dwelling, use the one with the most stringent reevaluation schedule. Do not use the results of a reevaluation for Schedule 2.

2. A lead-based paint hazard includes, but is not limited to, deteriorated lead-based paint and leaded dust and soil above applicable standards. See the Glossary for a more complete definition.

3. The frequency of reevaluations and the interval between reevaluations depends on the findings at each reevaluation and the action taken. For example, a dwelling unit or common area falling under Schedule 3.A would be reevaluated 1 year after clearance. If no lead-based paint hazards are detected at that time, the unit or area would be reevaluated again 2 years after the first reevaluation. If no hazards are found in the second reevaluation, no further reevaluation is necessary, but annual visual monitoring should continue.

   If, on the other hand, the unit or common area fails a reevaluation, a new reevaluation schedule should be determined based on the results of the reevaluation and the action taken. For instance, if the reevaluation finds deteriorated lead-based paint but no lead-contaminated dust, and the action taken is paint stabilization, Schedule 5.A would apply, which indicates that the next reevaluation should be in 2 years. If, however, the owner of this same property decides to abate all lead-based paint hazards instead of doing only paint stabilization, the property would move to Schedule 5.C, which calls for reevaluation 4 years from the date of clearance after the hazard abatement.

   Following another scenario, suppose a reevaluation of this same dwelling unit or common area finds that the average dust lead levels on sampled window troughs exceeds the applicable standard by a factor of 10 or more, but no other lead-based paint hazards. The owner conducts dust removal. In this case the next reevaluation would be 6 months after clearance followed by another a year later, followed by yet another 2 years later, as indicated by Schedule 4.A.

4. The initial evaluation results determine which reevaluation schedule should be applied. An initial evaluation can be a risk assessment, a risk assessment/ inspection combination, or, if the owner has opted to bypass the initial evaluation and proceed directly to controlling suspected hazards, a combination risk assessment/clearance examination. This type of clearance must be conducted by a certified risk assessor, who should determine if all hazards were in fact controlled. The results of the initial clearance dust tests, soil sampling and visual examination should be used to determine the appropriate schedule. If repeated cleaning was necessary to achieve clearance, use the results of the dust tests *before* repeated cleaning was performed for schedule determination.

5. If a unit fails two consecutive reevaluations, the reevaluation interval should be reduced by half and the number of reevaluations should be doubled. If deteriorated lead-based paint hazards continue to occur, then the offending components/surfaces should be abated. If dwellings with dust hazards but no paint-related hazards repeatedly fail reevaluations, the exterior source should be identified (if identification efforts fail, regular dust removal efforts are needed).