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HOUSING AND URBAN DEVELOPMENT

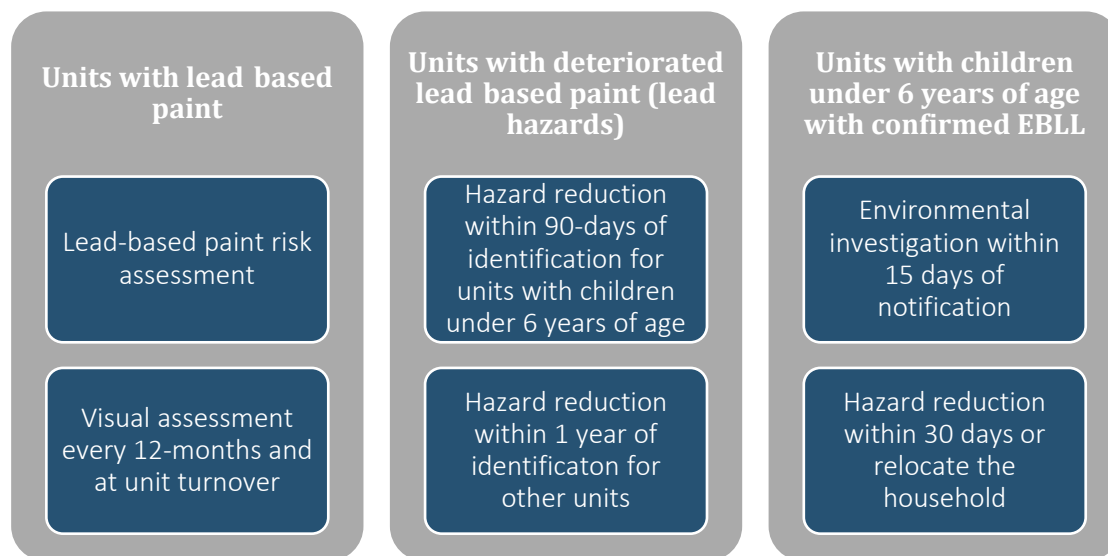
The Philadelphia Housing Authority Needs To Improve Oversight of Lead-Based Paint In Its Public Housing

Audit Report Number: 2023-CH-1001

March 22, 2023

PHAs are required to abate lead-based paint hazards or enact interim controls and ongoing maintenance within 90 days for units with a child under 6 years of age or 1-year for other units.⁶ Interim controls are measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards, including but not limited to specialized cleaning, repairs, maintenance, painting, temporary containment, ongoing monitoring, etc. Public housing units with lead-based paint are required to have visual assessments conducted to identify deteriorated lead-based paint, every 12 months and when the unit turns over, meaning it is vacated and a new tenant moves in.⁷ The LSHR also established additional requirements for instances of a child under 6 years of age with an elevated blood lead level⁸ (EBLL). These requirements include (1) obtaining an environmental investigation⁹ of the unit to identify the source of lead exposure and lead-based paint hazards¹⁰ and (2) addressing any lead-based paint hazards identified by the environmental investigation within 30 days or relocate the household.¹¹

Figure 1. Summarizes HUD’s requirements for public housing with lead-based paint.



According to HUD’s Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, units that have had a lead-based paint inspection that did not identify the presence of lead-based paint are identified as “lead free” and further action is not required. Units that have had a lead-based paint inspection that identified lead-based paint that does not present a hazard and is currently being treated with interim controls and ongoing maintenance are identified as “lead safe.”

⁶ 24 CFR 35.1120(a) and 24 CFR 35.1120(b)

⁷ 24 CFR 35.1355(a)(2)

⁸ HUD defines EBLL as a child under 6 years of age with blood lead levels equal to or greater than 5 micrograms per deciliter of blood (µg/dL).

⁹ An environmental investigation is the process of determining the source of lead exposure for a child under age 6 with an EBLL. The environmental investigation is required within 15 days after that notification by a public health department or other medical health care provider that a child of less than 6 years of age living in a dwelling unit has been identified as having an EBLL.

¹⁰ 24 CFR 35.1130(a)

¹¹ 24 CFR 35.1130(c)

The Lead Disclosure Rule established procedures for notifications or disclosures of the presence of lead-based paint and known lead-based paint hazards in housing.¹²

Public housing was established to provide decent and safe rental housing for eligible low-income families, the elderly, and persons with disabilities. Public housing comes in all sizes and types, from scattered single-family houses to highrise apartments. Nationwide, there are approximately 1 million households residing in public housing developments that are managed by about 3,300 local PHAs. PHAs own and operate the public housing developments¹³ in which such residents reside. The PHAs are responsible for managing and operating their housing developments in compliance with all applicable HUD and other Federal regulations.

Philadelphia Housing Authority

The Philadelphia Housing Authority was founded in 1937 and is the fourth largest public housing agency in the Nation.

The Authority operates a public housing program consisting of nearly 13,000 units in approximately 40 developments. It has approximately 5,700 public housing units in 28 developments that are considered target housing for the Lead Safe Housing Rule. The Authority maintained an internal unit status log to track lead-based paint in its public housing units that are target housing. The log included the status of 5,253 units in 28 developments from which we identified a universe of 4,601¹⁴ units for potential review. The Authority classified these units into the following three categories: 2,123 units were identified as “lead free,” 2,427 were identified as “lead safe,” and 51 units needed hazard reduction.¹⁵

Our audit objective was to determine whether the Authority adequately managed lead-based paint and lead-based paint hazards in its public housing units.

¹² 24 CFR 35 Subpart A

¹³ A public housing development, also known as an asset management project or a project, is a property or collection of properties assisted under Section 9 of the United States Housing Act of 1937. A public housing development may consist of several buildings or properties, containing multiple units. These buildings or properties may be in different physical locations.

¹⁴ See the Scope and Methodology section of this report for more information about how we determined the universe of units for review.

¹⁵ Units that have present lead-based paint hazards and require hazard remediation or the implementation of interim controls.

Results of Audit

THE AUTHORITY DID NOT ADEQUATELY MANAGE LEAD-BASED PAINT IN ITS PUBLIC HOUSING UNITS

The Philadelphia Housing Authority did not adequately manage lead-based paint in its public housing units. Specifically, it did not always (1) perform lead-based paint visual assessments within the required timeframe and (2) mitigate lead-based paint hazards in a timely manner. Further, the Authority needs to improve its processes for maintaining lead-based paint documentation and providing accurate lead-based paint disclosures to tenants. The Authority also did not ensure that its contractors provided lead-based paint inspection and risk assessment reports that met HUD's requirements. These weaknesses occurred because the Authority lacked adequate procedures and controls to ensure that it appropriately managed its housing units that contained lead-based paint. As a result, households that participated in the Authority's program were at an increased risk of being exposed to lead-based paint hazards, particularly families with children under 6 years of age.

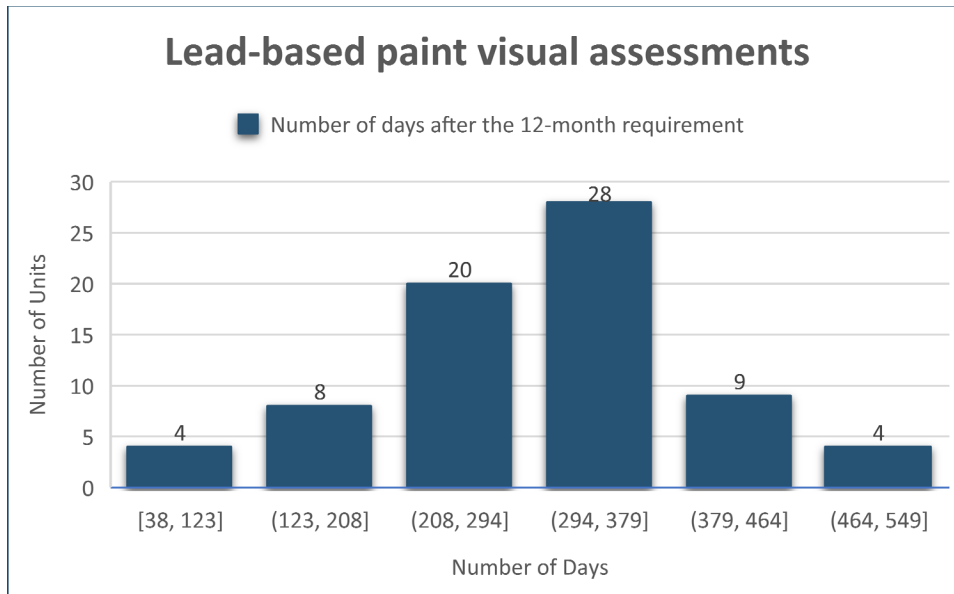
The Authority Did Not Always Perform Lead-Based Paint Visual Assessments Within the Required Timeframe

The Authority did not always ensure that it performed visual assessments for units that contained lead-based paint within the required 12-month timeframe.¹⁶ Of the 2,478 units identified by the Authority as either "lead safe" or needing hazard reduction, we reviewed the records for a sample of 81 units.¹⁷ Of the 81 units, the Authority did not perform visual assessments for 73 (90 percent) in a timely manner. The 73 units consisted of 58 units classified as lead safe and 15 units that required hazard reduction. For these 73 units, the number of days in which the visual assessments were completed ranged from 38 to 549 days after the 12-month requirement.

The table below shows the number of days that the Authority took after the 12-month requirement to perform visual assessments for the 73 units.

¹⁶ Regulations at 24 CFR 35.1355(a)(2), require visual assessments for deteriorated paint, bare soil, and the failure of any hazard reduction measures at unit turnover and at least once every 12 months.

¹⁷ The 66 statistically sampled units that were selected from the 2,427 units categorized by the Authority as lead safe and the 15 nonstatistically sampled units that were selected from the 51 units that required lead hazard reduction. See the Scope and Methodology section of this report.



Based on the results of our statistical sample of 66 of the Authority’s 2,427 lead-safe units¹⁸ and projecting those results to the universe,¹⁹ we estimated that at least 1,973 of those units did not have lead-based paint visual assessments performed in the required timeframe; therefore, those units were not inspected in a timely manner. The 15 units that required lead hazard reduction were nonstatistically selected; therefore, we cannot project our results to the universe of 51 units. However, the Authority did not perform timely visual assessments for any of the 15 units that we reviewed.

Visual Assessments of Units Containing Children With Confirmed EBLLs Were Not Performed in a Timely Manner

During our audit period of October 1, 2019, through June 1, 2022, the Authority had 14 children under the age of 6 with confirmed EBLLs. These 14 children were associated with 11 units. Of the 11 units, 3 were considered lead free, and 8 were considered lead safe. The Authority was not required to perform visual assessments of the 3 lead free units since they do not contain lead-based paint. Additionally, the environmental investigations in the 3 lead free units confirmed that there was no lead-based paint in the units.

For seven of the 8 lead safe units, the Authority did not perform the required visual assessments in a timely manner. The Authority exceeded the requirement to perform a visual inspection within the 12-month requirement by 92 to 345 days. Further, in six of the seven units where the Authority did not perform timely visual assessments, a child was confirmed to have an EBLL and the Authority later identified lead-based paint or dust hazards through environmental investigations. The environmental investigations determined that all six units had lead dust hazards, which would not have been identified by a visual assessment and five of the six units had deteriorated lead-based paint, which could have been identified by a visual assessment. For the five units with deteriorated lead-based paint, we found that for

¹⁸ We determined that 58 of our sample of 66 units categorized as lead safe did not have a timely visual assessment.

¹⁹ See the Scope and Methodology section of the report for information regarding our statistical projections.

two of the units, the required visual assessments were overdue at the time of the environmental investigation.

According to the Authority's management, the Authority combines the timing of the lead-based paint visual assessments with the Authority's annual physical inspections of its public housing units. In July 2020, HUD issued a waiver temporarily pausing the requirement for physical condition inspections due to the coronavirus disease (COVID-19) pandemic. Therefore, when the Authority implemented the waiver, it also paused conducting lead-based paint visual assessments. However, HUD had not issued a waiver pausing the requirement that PHAs perform lead-based paint visual assessments during the pandemic.

The Authority also stated that, due to COVID-19, the City of Philadelphia enacted local restrictions²⁰ which also effected its ability to perform the visual assessments in a timely manner. We found that the COVID-19 pandemic may have resulted in some inspections being performed untimely; however, it was not the only reason for the delayed inspections. For instance, we found that for one of the eight lead safe units, with a confirmed child with an ELL, the Authority performed the visual assessment late in 2019.

As result of the Authority's late visual assessments, deteriorated painted surfaces may have gone undetected for longer periods; therefore, households that participated in the Authority's program were at an increased risk of being exposed to lead-based paint hazards, particularly families with children under 6 years of age.

The Authority Did Not Always Mitigate Lead-Based Paint Hazards in a Timely Manner

Of the 81 units reviewed that had lead-based paint, we determined that lead-based paint hazards in 19 (23 percent) were not mitigated in a timely manner. This included 12 units that were identified by the Authority as lead safe and 7 that were identified as needing hazard reduction. According to HUD's requirements,²¹ once a lead-based paint hazard is identified in a unit, the Authority has 90 days to address the hazard²² for units with children under the age of 6 and 1 year to address the hazard for other units. For these 19 units, the Authority took between 21 to 122 days after the 90-day timeframe and between 5 to 91 days after the 1-year timeframe to complete the lead-based paint hazard reduction work.

²⁰ Shutdown orders for nonessential businesses due to COVID-19.

²¹ 24 CFR 35.1120(b)(1) and (2) and 24 CFR 35.1330

²² Lead-based paint hazards must be addressed by either abating the lead-based paint or lead-based paint hazards or performing interim controls.

The Authority's management officials provided the following reasons why the hazard reduction work was delayed for the 19 units.²³ Specifically, the hazard work was delayed for:

- Eight units due to COVID-19 restrictions and associated shutdowns.
- One unit due to contract delays and contract modifications for the work.
- Four units because the Authority had calculated the hazard reduction timeframe based upon when it received and reviewed the inspection and risk assessment report rather than the required date of when the lead-based paint evaluation was performed.²⁴
- Six units because the Authority had mistakenly used the wrong timeframe to complete the hazard reduction because its manual tracking spreadsheet did not indicate that a child under 6 years of age resided in the units.

These conditions occurred because the Authority lacked adequate procedures and controls to ensure that it correctly identified the time requirement for hazard reduction work and that the work was completed within that required timeframe. The Authority's staff manually tracked the due dates for units that required hazard reduction on a spreadsheet; however, the Authority did not have an oversight process in place to ensure that the spreadsheet (1) was complete and had up-to-date information to correctly calculate the timeframe for which hazard reduction in its units needed to be done and (2) calculated timeframes for the completion of hazard reduction work based on the date of the inspection and risk assessment evaluation rather than the date of receipt and review. As a result, families, including those with children under 6 years of age, may have been exposed to lead-based paint hazards for longer periods than allowed by HUD's requirements. Based on our review of statistically sampled units, we estimate that at least 257 of the Authority's 2,427 lead safe units contained lead-based paint hazards that were not mitigated in the required timeframe.²⁵

The Authority Mitigated Lead-Based Paint Hazards for the Units Containing Children With Confirmed EBLs in a Timely Manner

For the 14 children with EBLs, the Authority obtained the required environmental investigations of the associated housing units after being notified by the health department within 15 days. HUD's requirements for units that contain a child with a confirmed EBL includes obtaining an environmental investigation of the unit to identify the source of lead exposure and lead-based paint hazards and addressing any lead-based paint hazards identified by the environmental investigation within 30 days or relocating the household, as appropriate. The Authority provided documentation showing that it had mitigated lead-based paint and lead-dust hazards identified during the environmental investigations in a timely manner.

²³ See appendix B for a summary of units with late hazard reduction.

²⁴ According to the Authority's management, had the required timeframes been calculated based on when the Authority received and reviewed the inspection and risk assessment reports, the lead-based paint hazards in three of the four units would have been mitigated within the required timeframe. However, HUD's deadline for addressing lead-based paint hazards is based on the date of the evaluation.

²⁵ We determined that the Authority did not perform lead-based paint hazard reduction for 12 of our sample of 66 lead safe units in a timely manner.

The Authority Needs to Improve Its Processes for Maintaining Lead-Based Paint Documentation and Providing Accurate Lead-Based Paint Disclosures to Tenants

In 2018, the Authority began an initiative to obtain new lead-based paint inspections and risk assessments for its public housing properties. As part of the audit, we requested lead-based paint inspection reports, risk assessments, visual assessments, and work orders for its properties to assess how the Authority handled lead-based paint in its units. We also requested documentation showing how it managed households with a child under 6 years of age with a confirmed EBL. The Authority was unable to provide lead-based paint inspection and risk assessment documentation for its public housing developments for periods before the Authority's initiative with the earliest available lead-based paint inspection reports and risk assessments being from 2018 or 2019 depending on the unit.²⁶ HUD requires that PHAs maintain documentation related to lead-based paint activities for properties for at least 3 years, after such activities are no longer required.²⁷

The Authority's management said it was unable to locate the majority of its historical lead-based paint inspection reports and risk assessment documentation due to turnover of its employees that maintained those documents, and because the Authority did not maintain lead-based paint-related documents electronically until 2019. Therefore, we were unable to assess whether the (1) Authority appropriately managed lead-based paint in its properties before its initiative and (2) Authority's households with a child under 6 years of age with an EBL were properly notified of the presence of lead-based paint or lead-based paint hazards in their housing units.

Further, HUD permits tenants to review lead-based paint records related to the property in which they reside or plan to reside and requires PHAs to make the documents available when requested. However, before 2019, the Authority generally did not have documentation available to enable tenants to understand the risks associated with lead-based paint in their housing units.

Improper Tenant Disclosures

The Authority did not always accurately disclose the presence of lead-based paint or lead-based paint hazards to prospective tenants as required.²⁸ For 15 of the 66 sample units (nearly 23 percent) that were identified by the Authority as lead safe (i.e., units that have lead-based paint but the paint does not currently present a hazard and is treated with interim controls), the Authority provided prospective tenants lead disclosure forms stating that (1) the Authority had no knowledge of lead-based paint or lead-based paint hazards in the subject properties and (2) there were no lead-based paint records available to provide to the tenants. However, the Authority had received lead-based paint inspection and risk assessment reports identifying lead-based paint in the 15 units before the dates of the disclosure forms.

Based on our review of statistically sampled units, we estimate that the Authority made at least 356 improper lead-based paint disclosures to its tenants residing in the Authority's 2,427 lead safe units. We were unable to assess the accuracy of lead disclosures made to tenants and prospective tenants for most units because the (1) Authority could not locate historical lead-based paint inspection and risk

²⁶ HUD required public housing units to be inspected for lead-based based by September 15, 2000.

²⁷ Lead hazard reduction activities are no longer a requirement when the property is determined to be free from lead-based paint.

²⁸ 24 CFR 35.88

assessment reports and (2) lead disclosures occurred before the date of the Authority's lead-based paint inspection and risk assessment records.

The Authority's management stated that the Authority's property managers had been trained on the disclosure process but did not provide the households with risk assessment report data that was received outside of their tenancy. Further, the Authority's management told us that it was developing and implementing an automated process to ensure that it properly identifies, documents, and discloses lead-based paint. The Authority also stated that it is seeking technical assistance from the local Philadelphia HUD office to ensure that the Authority has an accurate understanding of what should be recorded and reported to applicants and residents and when this reporting should occur.

The Authority Did Not Ensure That Its Contractors Provided Lead-Based Paint Inspections and Risk Assessment Reports That Met HUD's Requirements

The Authority did not ensure that its contractors provided lead-based paint inspection and risk assessment reports that met HUD's or the Environmental Protection Agency's (EPA) requirements.²⁹ We reviewed lead-based paint inspection and risk assessment reports for 96 of the Authority's units.³⁰ Of the reports covering the 96 units, we determined that the report for only one of the units contained all of the required elements.³¹ The reports for the remaining 95 units³² were missing 1 or more of the following required elements:

- a current, unexpired risk assessor's certification for 15 units,
- the risk assessor's signature on the report for 46 units,
- the serial number of the X-ray fluorescence analyzer (XRF)³³ device used for 20 units, and
- building construction dates³⁴ for the inspected properties for 70 units.

In our lead-safe sample of 66 units, the reports for 65 units had deficiencies. Of the 65 reports with deficiencies, 12 units had inspections or risk assessments in which the risk assessor's certification may have expired,³⁵ the reports for 29 units were missing the risk assessor's signature, the reports for 11 units

²⁹ 24 CFR 35.1320(a), 40 CFR 745.227(b)(4), 24 CFR 35.1320(b)(1), and 40 CFR 745.227(d)(11)

³⁰ Sixty-six sampled units identified as lead safe, 15 units identified as lead free, and 15 units identified as needing hazard reduction activities during our audit period.

³¹ Based on EPA's requirements at 40 CFR 745.227(b)(4), the inspection report must contain specific elements. See appendix D.

³² See appendix C for a summary of deficiencies observed for the 95 units.

³³ An XRF device is a tool for determining whether lead is present in paint and measuring the concentration of lead present. Recording the XRF device serial number is part of EPA's requirement to document methodologies and ensuring adequate quality control measures.

³⁴ Construction dates are used to determine the sample size for multiunit developments with the number of required sampled units changing depending on the age of the units in the development to be tested. The assessor may use different sampling techniques to extrapolate results if it is known that not all buildings in a development were built at the same time or if the development has buildings from different eras and if multiple samples need to be used.

³⁵ Although HUD does not require inspectors or risk assessors to submit a copy of their license with the inspection or assessment report, some reports contained the documentation. Therefore, we were able to determine that the inspection and assessment reports contained expired certification documentation.

were missing the serial number of the XRF device, and the reports for 48 units were missing the construction date of the properties. Based on the results of our statistical sample of 66 of the Authority's 2,427 lead-safe units and projecting our results to the universe, we estimated that the reports for at least 2,326 units had at least 1 deficiency. Specifically, we estimate that the lead-based paint inspection and risk assessment reports for at least (1) 283 units contained a risk assessor's certification that may have expired, (2) 884 units were missing an assessor's signature, (3) 244 units were missing the serial number of the XRF devices used in conducting the inspection or assessment, and (4) 1,614 units were missing the buildings' construction dates.

The Authority's management acknowledged that the lead-based paint inspection and risk assessment reports were missing the required elements and stated that the Authority needed to strengthen its processes to ensure that the reports meet HUD's requirements going forward. However, according to the Authority's management, the reports with expired certifications, missing signatures, and missing construction dates, did not impact the Authority's management of lead-based paint from a health and safety standpoint because the lead-based paint hazards that were identified in the reports were treated. The Authority's management stated that using XRF data was not a regulated requirement and therefore the lack of serial numbers for the XRF devices should not be cited as an issue. The Authority believed that under governing regulations, it was not required to use XRF testing. However, HUD requires that lead-based paint inspection reports comply with EPA's requirements, which requires the serial number for the XRF device, if used. Therefore, the Authority lacked adequate oversight of its contracted lead inspectors to ensure that lead-based paint and risk assessment reports complied with HUD's requirements. As a result, HUD and the Authority lacked assurance that the inspections and risk assessments reports were sufficient.

Conclusion

The Authority did not adequately manage lead-based paint in its public housing units because it lacked sufficient procedures and controls to ensure that it took appropriate actions to identify lead-based paint hazards and disclose lead-based paint and lead-based paint hazards in its housing units. It also lacked adequate oversight of its contracted lead-based paint inspections and risk assessments. Therefore, the Authority needs to improve its management of lead-based paint and lead-based paint hazards in its housing units to better protect households from the risks associated with lead-based paint. If the Authority does not improve, families, including those with children under 6 years of age, risk being exposed to lead-based paint hazards.

Recommendations

We recommend that the Director of the Philadelphia Office of Public Housing require the Authority to

- 1A. Establish and implement procedures and controls to ensure that lead-based paint visual assessments are performed within the required timeframe.
- 1B. Implement adequate procedures and controls to ensure that lead-based paint hazard reduction work is performed within the required timeframe and that all identified hazards are abated or treated with interim controls.
- 1C. Maintain lead-based paint documentation for its properties in a manner that it is readily available for review by HUD and the Authority's tenants if requested.

- 1D. Perform a search for historical lead-based paint documentation and if any documents are found, compare the results from the historical documents with the results of the recent testing to identify any potential issues or inconsistencies and maintain all lead-based paint documentation related to the Authority's properties according to HUD's requirements.
- 1E. Implement adequate procedures and controls to ensure that accurate lead disclosures are provided to current and prospective tenants.
- 1F. Implement adequate controls to ensure that contracted inspectors' deliverables comply with HUD's and EPA's requirements.

We also recommend that the Director of the Philadelphia Office of Public Housing

- 1G. Work in conjunction with HUD's Office of Lead Hazard Control and Healthy Homes to provide training to the Authority's staff involved with managing lead-based paint and technical assistance in developing and implementing new procedures and controls.
- 1H. Work in conjunction with HUD's Office of Lead Hazard Control and Healthy Homes to assess the quality of the lead-based paint inspections and risk assessments performed by the Authority's contractors to determine whether they are sufficient to fulfill HUD's requirements.

Scope and Methodology

We performed our audit work remotely from November 2021 to October 2022. Our audit period was October 1, 2019, to June 1, 2022, to bring our audit results as current as possible.

To accomplish our audit objective, we had discussions with the Authority's and HUD's management officials and staff. In addition, we reviewed:

- 42 U.S.C. (United States Code) 63, 63(a), and 1437d; the Lead Disclosure Rule and Lead Safe Housing Rule at 24 CFR part 35; EPA requirements at 40 CFR part 745; HUD's Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing; HUD's Office of Public and Indian Housing (PIH) notices; information from HUD's EBLL tracker; and information maintained in HUD's Inventory Management System-PIH Information Center (IMS-PIC).
- The Authority's policies and procedures for managing lead-based paint, unit status log, service work orders, lead-based paint inspection and risk assessment reports, lead-based paint maintenance and remediation records, lead-based paint clearance reports, lead-based paint disclosures, unit inspection reports, records related to EBLL cases, and lead-based paint hotline records.

The Authority maintained an internal Excel database to track lead-based paint in its target public housing units, which it refers to as the unit status log. The log included the status for 28 developments and included a total of 5,253 units. The log identified units in 3 categories by lead status: (1) "lead free" with a universe of 2,767 units, (2) "lead safe" with a universe of 2,435 units, and (3) "hazard reduction" with a universe of 51 units. We performed reliability testing on the Authority's unit status log. After, we removed duplicate units, developments that may be exempt³⁶ from the Lead Safe Housing Rule, and units that would be covered in other sections of our review, there were a total of 4,601 units remaining in the Authority's unit status log. We then divided the unit status log into three categories by lead status: (1) "lead free" with a universe of 2,123 units, (2) "lead safe" with a universe of 2,427 units, and (3) "hazard reduction" with a universe of 51 units. Except for the duplicates, we determined that the data on the Authority's unit status log were reasonably reliable to use as a source for sampling purposes.

The Authority identified 2,123 units as being lead free. We selected a nonstatistical sample of 15 units to assess whether these units were appropriately categorized and managed. Since our sample was nonstatistically selected, we did not project the results to the universe of lead-free units.

The Authority identified 2,427 units as lead safe. Of the 2,427 units, we statistically selected a sample of 66 to assess whether these units were appropriately categorized and managed. Using our sample of units, we projected to the universe of 2,427 lead-safe units.

The Authority identified 51 units that needed to undergo lead-based paint hazard reduction. We selected a nonstatistical sample of 15 units to assess the Authority's management of the lead-based paint hazards.

³⁶ Units could be exempt from the Lead Safe Housing Rule by not constituting target housing, such as being built after 1978, by being designated for exclusive use by elderly or disabled persons (so long as no child under the age of six resides in the unit), or by being a zero-bedroom unit.

Since our sample was nonstatistically selected, we did not project the results to the universe of 51 units requiring lead-based paint hazard reduction.

During our audit period, the Authority had 14 cases of children under 6 years of age with EBLLs. The 14 children resided in 11 of the Authority’s units. We reviewed all 14 cases and the associated units to determine whether the Authority properly handled these cases and managed the associated units in accordance with the Lead Safe Housing Rule. Since we reviewed 100 percent of the cases, projection to the universe was not applicable.

Methodology for Projections

We employed a stratified random sample of 66 units for review among the universe of 2,427 Authority units classified as “lead safe.” We used the developments that each housing unit was associated with to design the strata. We grouped some developments to obtain 11 strata. We detail the sample counts per stratum and sampling weights in the sample table below.

Sample design table				
Stratum (development ID)	Total count in stratum	Sample count	Probability of selection	Sampling weight
1 - 18	340	9	0.136363636	37.8
19 - 30	216	6	0.090909091	36.0
31 - 49	333	9	0.136363636	37.0
901	259	7	0.106060606	37.0
902	148	4	0.060606061	37.0
903	249	7	0.106060606	35.6
904	170	5	0.075757576	34.0
905	175	5	0.075757576	35.0
906	159	4	0.060606061	39.8
907 - 908	186	5	0.075757576	37.2
909 - 910	192	5	0.075757576	38.4
Total	2,427	66		

We computed the percentage and number of counts of Authority units classified as “lead safe” reviewed with material deficiencies based on the sampling results, and we extended this result to the population

using the surveyfreq procedure³⁷ provided by SAS®.³⁸ We estimated the lower confidence interval using a Gaussian sampling³⁹ distribution, which is appropriate for error rates in this range. We extended these percentages to the 2,427 records in the universe to get the total universe count of housing units with a material deficiency.

The basic estimation calculations are as follows:

$$Percent_{LCL} = pct - t_{\alpha/2} SE_{\%}$$

$$Universe\ Count_{LCL} = N * Percent_{LCL}$$

$Percent_{LCL}$ = percentage of sampling units after deducting a margin of error.

$Universe\ Count_{LCL}$ = total number of sampling units in the universe after deducting a margin of error.

N = total number of sampling units in the sampling frame.

pct = weighted percent of sampling units with the error in the sampling frame.

$SE_{\%}$ = standard error per unit, as applies to projecting proportions.

$t_{\alpha/2}$ = student's - t for projecting a one-sided confidence interval for a sample of this size.

Our findings with mathematical demonstrations are as follows:

Percentage-Count Projection Results: Lead Disclosures

HUD requires public housing agencies to disclose any instances of lead-based paint to prospective tenants. We reviewed the lead disclosures and the Authority's lead-based paint inspection-risk assessment reports and determined that the Authority provided improper lead disclosures to tenants in 15 of the 66 units. The proportion amounts to a weighted average of 22.6 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 14.7 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 356 units of the Authority had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation:	$22.6\% - (1.673 \times 4.7\%) \approx 14.7\%_{LCL}$
Total records projection:	$2,427 \times (22.6\% - (1.673 \times 4.7\%)) \approx 356_{LCL}$

³⁷ The surveyfreq procedure produces one-way to n-way frequency and crosstabulation tables from sample survey data. These tables include estimates of population totals, population proportions, and their standard errors. Confidence limits, coefficients of variation, and design effects are also available. The procedure provides a variety of options to customize the table display.

³⁸ SAS (previously "Statistical Analysis System") is a statistical software suite developed by SAS Institute for data management, advanced analytics, multivariate analysis, business intelligence, criminal investigation, and predictive analytics.

³⁹ In statistics, a normal distribution or "Gaussian" distribution is a type of continuous probability distribution for a real-valued random variable.

Percentage-Count Projection Results: Visual Assessments

For units with lead-based paint, HUD requires that visual assessments for deteriorated lead-based paint be conducted at least annually. We reviewed the units' visual assessments and determined that the Authority completed the visual assessments late for 58 of the 66 units. The proportion amounts to a weighted average of 87.8 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 81.3 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 1,973 units of the Authority had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation: $87.8\% - (1.674 \times 3.9\%) \approx 81.3\%_{LCL}$
Total records projection: $2,427 \times (87.8\% - (1.674 \times 3.9\%)) \approx 1,973_{LCL}$

Percentage-Count Projection Results: Hazard Reduction

Once a lead-based paint hazard is identified in a unit, the public housing agency has 90 days to correct the hazard for units with children under the age of 6 and 1 year to correct the hazard for units that do not have children under the age of 6. We reviewed the units' lead-based paint inspection-risk assessment documentation to identify lead-based paint hazards that would require hazard reduction. We then reviewed the Authority's work orders and hazard reduction documentation. We assessed whether the Authority completed the hazard reduction and calculated the timeframe between when the hazard was identified and when the hazard reduction was completed. We determined that the Authority did not complete hazard reduction within the required timeframe for 12 of the 66 units. The proportion amounts to a weighted average of 18.0 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 10.6 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 257 units of the Authority had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation: $18.0\% - (1.672 \times 4.4\%) \approx 10.6\%_{LCL}$
Total records projection: $2,427 \times (18.0\% - (1.672 \times 4.4\%)) \approx 257_{LCL}$

Percentage-Count Projection Results: Lead-Based Paint Inspections-Risk Assessments

HUD and EPA require certain information to be included in lead-based paint risk assessment reports. We reviewed the units' most recent lead-based paint inspection-risk assessment reports and determined that inspection-risk assessment reports that the Authority relied on for 65 of the 66 units did not include one or more of the following required elements: (1) a nonexpired risk assessor certification, (2) the risk assessor's signature, (3) the serial number of the XRF device used, and (4) building construction dates. The proportion amounts to a weighted average of 98.4 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 95.8 percent of the time, there was at least one material deficiency for the attributes tested. Extending this percentage to the universe of 2,427 records, at least 2,326 units of the Authority had at least one material deficiency for the attributes tested; however, this count could be higher.

Percentage calculation: $98.4\% - (1.669 \times 1.5\%) \approx 95.8\%_{LCL}$
Total records projection: $2,427 \times (98.4\% - (1.669 \times 1.5\%)) \approx 2,326_{LCL}$

Nonexpired Risk Assessor Certification

We reviewed the units' most recent lead-based paint inspection-risk assessment reports and determined that a nonexpired risk assessor certification was not included for 12 of the 66 units. The proportion amounts to a weighted average of 18.4 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 11.7 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 283 units of the Authority had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation: $18.4\% - (1.673 \times 4.0\%) \approx 11.7\%_{LCL}$
Total records projection: $2,427 \times (18.4\% - (1.673 \times 4.0\%)) \approx 283_{LCL}$

Risk Assessor's Signature

We reviewed the units' most recent lead-based paint inspection-risk assessment reports and determined that a risk assessor's signature was not included for 29 of the 66 units. The proportion amounts to a weighted average of 43.8 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 36.4 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 884 units of the Authority had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation: $43.8\% - (1.674 \times 4.4\%) \approx 36.4\%_{LCL}$
Total records projection: $2,427 \times (43.8\% - (1.674 \times 4.4\%)) \approx 884_{LCL}$

Serial Number of the XRF Device

We reviewed the units' most recent lead-based paint inspection-risk assessment reports and determined that the serial number of the XRF device was not included for 11 of the 66 units. The proportion amounts to a weighted average of 16.8 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 10.0 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 244 units of the Authority had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation: $16.8\% - (1.672 \times 4.0\%) \approx 10.0\%_{LCL}$
Total records projection: $2,427 \times (16.8\% - (1.672 \times 4.0\%)) \approx 244_{LCL}$

Building Construction Date

We reviewed the units' most recent lead-based paint inspection-risk assessment reports and determined that the building's construction date was not included for 48 of the 66 units. The proportion amounts to a weighted average of 72.9 percent. Including a statistical margin of error, we can say with a one-sided confidence interval of 95 percent that at least 66.5 percent of the time, there was a material deficiency for the attribute tested. Extending this percentage to the universe of 2,427 records, at least 1,614 units of the PHA had a material deficiency for the attribute tested; however, this count could be higher.

Percentage calculation: $72.9\% - (1.672 \times 3.8\%) \approx 66.5\%_{LCL}$
Total records projection: $2,427 \times (72.9\% - (1.672 \times 3.8\%)) \approx 1,614_{LCL}$

Appendix B – Summary of Late Hazard Reduction

Unit	90-day requirement	365-day requirement	Total days to complete hazard reduction	Days after requirement	The Authority's explanation for delay
1	X		212	122	Did not identify the child under 6 in unit
2		X	456	91	Delayed due to COVID-19
3	X		162	72	Did not identify the child under 6 in unit
4	X		162	72	Did not identify the child under 6 in unit
5		X	434	69	Delayed due to COVID-19
6		X	425	60	Delayed due to COVID-19
7		X	416	51	Delayed due to COVID-19
8		X	407	42	Delayed due to COVID-19
9		X	406	41	Delayed due to COVID-19
10		X	400	35	Delayed due to COVID-19
11	X		119	29	Contract modifications
12	X		117	27	Did not identify the child under 6 in unit
13		X	390	25	Calculated timeframe based on date report received
14		X	388	23	Delayed due to COVID-19
15	X		112	22	Calculated timeframe based on date report received
16	X		111	21	Did not identify the child under 6 in unit
17	X		111	21	Did not identify the child under 6 in unit
18		X	372	7	Calculated timeframe based on date report received
19		X	370	5	Calculated timeframe based on date report received

Appendix C – Summary of Our Review of Lead-Based Paint Inspection and Risk Assessment Reports

Sample number ⁴⁰	Expired assessor certification	Missing assessor's signature	Missing serial number of XRF device used	Missing construction dates	Complied with requirements? Y-N	
1		X	X	X		N
2		X	X			N
3	X			X		N
4		X				N
5				X		N
6				X		N
7				X		N
8	X			X		N
9				X		N
10	X			X		N
11				X		N
12				X		N
13		X	X			N
14		X				N
15		X		X		N
Lead free total	3	6	3	11	0	15
16				X		N
17		X	X	X		N
18		X				N
19				X		N
20		X		X		N
21		X	X	X		N
22		X	X	X		N
23		X	X	X		N
24		X	X	X		N
25		X	X	X		N

⁴⁰ Sample numbers 1-15 include the 15 units that were categorized as lead free. Sample numbers 16-30 include the 15 units that were categorized as requiring lead hazard reduction. Sample numbers 31-96 include the 66 units that were categorized as lead safe.

Sample number ⁴⁰	Expired assessor certification	Missing assessor's signature	Missing serial number of XRF device used	Missing construction dates	Complied with requirements? Y-N
55				X	N
56				X	N
57				X	N
58				X	N
59				X	N
60		X			N
61				X	N
62		X	X	X	N
63	X			X	N
64	X			X	N
65	X			X	N
66				X	N
67				X	N
68	X			X	N
69	X			X	N
70	X			X	N
71					Y
72	X			X	N
73	X			X	N
74				X	N
75				X	N
76				X	N
77				X	N
78			X	X	N
79			X	X	N
80		X		X	N
81		X		X	N
82				X	N
83				X	N
84	X			X	N
85	X			X	N
86	X			X	N

Appendix D – Federal Requirements

The United States Code at 42 U.S.C. 1437d(f)(1) states that each contract for contributions for a public housing agency must require that the agency maintain its public housing in a condition that complies with standards, which meet or exceed the housing quality standards established under paragraph (2).

The United States Code at 42 U.S.C. 1437d(f)(2) states that the HUD Secretary must establish housing quality standards under this paragraph, which ensure that public housing dwelling units are safe and habitable. Such standards should include requirements relating to habitability, including maintenance, health and sanitation factors, condition, and construction of dwellings.

HUD regulations at 24 CFR 35.88(a)(2) states that the lessor must disclose to the lessee the presence of any known lead-based paint or lead-based paint hazards in the target housing being leased. The lessor must also disclose any additional information available concerning the known lead-based paint or lead-based paint hazards, such as the basis for the determination that lead-based paint or lead-based paint hazards exist, the location of the lead-based paint or lead-based paint hazards, and the condition of the painted surfaces.

HUD regulations at 24 CFR 35.88(a)(3) states that the lessor must disclose the existence of any available records or reports pertaining to lead-based paint and/or lead-based paint hazards. The lessor must disclose any additional information available concerning the known lead-based paint and/or lead-based paint hazards, such as the basis for the determination that lead-based paint and/or lead-based paint hazards exist, the location of the lead-based paint and/or lead-based paint hazards, and the condition of the painted surfaces.

HUD regulations at 24 CFR 35.88(a)(4) state that the lessor must provide the lessee with any records or reports available to the lessor pertaining to lead-based paint or lead-based paint hazards in the target housing being leased. This requirement includes records and reports regarding common areas. This requirement also includes records and reports regarding other residential dwellings in multifamily target housing, provided that such information is part of an evaluation or reduction of lead-based paint or lead-based paint hazards in the target housing as a whole.

HUD regulations at 24 CFR 35.92(b) state that each contract to lease target housing must include, as an attachment or within the contract, the following elements:

(2) A statement by the lessor disclosing the presence of known lead-based paint or lead-based paint hazards in the target housing being leased or indicating no knowledge of the presence of lead-based paint or lead-based paint hazards. The lessor must also disclose any additional information available concerning the known lead-based paint or lead-based paint hazards, such as the basis for the determination that lead-based paint or lead-based paint hazards exist in the housing, the location of the lead-based paint or lead-based paint hazards, and the condition of the painted surfaces.

(3) A list of any records or reports available to the lessor pertaining to lead-based paint or lead-based paint hazards in the housing that have been provided to the lessee. If no such records or reports are available, the lessor must so indicate.

HUD's regulations at 24 CFR 35.110 define abatement as any set of measures designed to permanently eliminate lead-based paint or lead-based paint hazards. (See the definition of "permanent.") Abatement includes the removal of lead-based paint and dust-lead hazards, the permanent enclosure or encapsulation of lead-based paint, the replacement of components or fixtures painted with lead-based paint, and the removal or permanent covering of soil-lead hazards.

HUD's regulations at 24 CFR 35.110 define interim controls as a set of measures designed to temporarily reduce human exposure or likely exposure to lead-based paint hazards. Interim controls include but are not limited to repairs, painting, temporary containment, specialized cleaning, clearance, ongoing lead-based paint maintenance activities, and the establishment and operation of management and resident education programs.

HUD's regulations at 24 CFR 35.110 define a lead-based paint hazard as any condition that causes exposure to lead from dust-lead hazards; soil-lead hazards; or lead-based paint that is deteriorated or present in chewable surfaces, friction surfaces, or impact surfaces and that would result in adverse human health effects.

HUD's regulations at 24 CFR 35.110 define target housing as any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless a child of less than 6 years of age resides or is expected to reside in such housing for the elderly or persons with disabilities) or any zero-bedroom dwelling.

HUD's regulations at 24 CFR 35.115(a) state that subparts B through R of this part do not apply to the following: (1) a residential property for which construction was completed on or after January 1, 1978, or in the case of jurisdictions that banned the sale or residential use of lead-containing paint before 1978, an earlier date as HUD may designate; (2) a zero-bedroom dwelling unit, including a single-room-occupancy dwelling unit; (3) housing for the elderly or a residential property designated exclusively for persons with disabilities, except this exemption should not apply if a child less than 6 years of age resides or is expected to reside in the dwelling unit (see definitions of "housing for the elderly" and "expected to reside" in 24 CFR 35.110); and (4) residential property found not to have lead-based paint by a lead-based paint inspection conducted in accordance with section 35.1320(a). Results of additional test(s) by a certified lead-based paint inspector may be used to confirm or refute a previous finding.

HUD's regulations at 24 CFR 35.175 state that the designated party, as specified in subparts C, D, and F through M of this part, should keep a copy of each notice, evaluation, and clearance or abatement report required by subparts C, D, and F through M of this part for at least 3 years. Those records applicable to a portion of a residential property, for which ongoing lead-based paint maintenance, reevaluation activities, or both are required, must be kept and made available for HUD's review until at least 3 years after such activities are no longer required.

HUD's regulations at 24 CFR 35.1100 state that the purpose of subpart L is to establish procedures to eliminate, as far as practicable, lead-based paint hazards in residential property assisted under the U.S. Housing Act of 1937 (42 U.S.C. 1437 et seq.) but not including housing assisted under Section 8 of the 1937 Act.

HUD's regulations at 24 CFR 35.1115(a) state that a lead-based paint inspection must be conducted in all public housing unless a lead-based paint inspection that meets the conditions of subsection 35.165(a) has

already been completed. If a lead-based paint inspection was conducted by a lead-based paint inspector who was not certified, the public housing agency should review the quality of the inspection, in accordance with quality control procedures established by HUD, to determine whether the lead-based paint inspection has been properly performed and the results are reliable. Lead-based paint inspection of all housing to which this subpart applies must be completed not later than September 15, 2000.

HUD's regulations at 24 CFR 35.1115 (b) state that if a lead-based paint inspection has found the presence of lead-based paint, or if no lead-based paint inspection has been conducted, the PHA shall conduct a risk assessment according to the following schedule, unless a risk assessment that meets the conditions of §35.165(b) has already been completed.

HUD's regulations at 24 CFR 35.1120(a) state that each public housing agency must, in accordance with section 35.1325, abate all lead-based paint and lead-based paint hazards identified in the evaluations conducted under 24 CFR 35.1115. The public housing agency should abate lead-based paint and lead-based paint hazards in accordance with 24 CFR 35.1325 during physical improvements conducted under modernization.

HUD's regulations at 24 CFR 35.1120(b) state that in all housing for which abatement of all lead-based paint and lead-based paint hazards required in paragraph (a) of this section has not yet occurred, each public housing agency must conduct interim controls, in accordance with 24 CFR 35.1330, of the lead-based paint hazards identified in the most recent risk assessment. (1) Interim controls of dwelling units in which any child who is less than 6 years of age resides and common areas servicing those dwelling units must be completed within 90 days of the evaluation under 24 CFR 35.1330. If a unit becomes newly occupied by a family with a child of less than 6 years of age or such child moves into a unit, interim controls must be completed within 90 days after the new occupancy or move-in if they have not already been completed. (2) Interim controls in dwelling units not occupied by families with one or more children of less than 6 years of age, common areas servicing those units, and the remaining portions of the residential property must be completed no later than 12 months after completion of the evaluation conducted under 24 CFR 35.1115.

HUD's regulations at 24 CFR 35.1120(c) state that the public housing agency must incorporate ongoing lead-based paint maintenance and reevaluation activities into regular building operations in accordance with section 35.1355.

HUD's regulations at 24 CFR 35.1135 state that a public housing agency may use financial assistance received under the modernization program for the notice, evaluation, and reduction of lead-based paint hazards.

HUD's regulations at 24 CFR 35.1300 state that the purpose of subpart R is to provide standards and methods for evaluation and hazard reduction activities required in subparts B, C, D, and F through M of this part.

HUD's regulations at 24 CFR 35.1310 state that further guidance information regarding evaluation and hazard reduction activities described in this subpart is found in the following: (a) The HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing.

HUD's regulations at 24 CFR 35.1320(a) state that lead-based paint inspections must be performed in accordance with methods and standards established either by a State or tribal program authorized by EPA under 40 CFR 745.324 or by EPA at 40 CFR 745.227(b) and (h).

EPA's regulations at 40 CFR 745.227(b)(1) state that an inspection must be conducted only by a person certified by EPA as an inspector or risk assessor and, if conducted, must be conducted according to the procedures in this paragraph.

EPA's regulations at 40 CFR 745.227(b)(4) state that the certified inspector or risk assessor must prepare an inspection report, which must include the following information: (i) date of each inspection; (ii) address of building; (iii) date of construction; (iv) apartment numbers (if applicable); (v) name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility; (vi) name, signature, and certification number of each certified inspector or risk assessor conducting testing; (vii) name, address, and telephone number of the certified firm employing each inspector or risk assessor, if applicable; (viii) each testing method and device or sampling procedure employed for paint analysis, including quality control data and, if used, the serial number of any XRF device; (ix) specific locations of each painted component tested for the presence of lead-based paint; and (x) the results of the inspection expressed in terms appropriate to the sampling method used.

HUD's regulations at 24 CFR 35.1320(b)(1) state that risk assessments and lead-hazard screens must be performed in accordance with methods and standards established either by a State or tribal program authorized by EPA or by EPA at 40 CFR 745.227(c), (d), and (h) and paragraph (b)(2) of this section.

EPA's regulations at 40 CFR 745.227(d)(1) state that a risk assessment must be conducted only by a person certified by EPA as a risk assessor and, if conducted, must be conducted according to the procedures in this paragraph.

EPA's regulations at 40 CFR 745.227(d)(11) state that the certified risk assessor must prepare a risk assessment report, which must include the following information: (i) date of assessment; (ii) address of each building; (iii) date of construction of buildings; (iv) apartment number (if applicable); (v) name, address, and telephone number of each owner of each building; (vi) name, signature, and certification of the certified risk assessor conducting the assessment; (vii) name, address, and telephone number of the certified firm employing each certified risk assessor, if applicable; (viii) name, address, and telephone number of each recognized laboratory conducting analysis of collected samples; (ix) results of the visual inspection; (x) testing method and sampling procedure for paint analysis employed; (xi) specific locations of each painted component tested for the presence of lead; (xii) all data collected from onsite testing, including quality control data and if used, the serial number of any XRF device; (xiii) all results of laboratory analysis on collected paint, soil, and dust samples; (xiv) any other sampling results; (xv) any background information collected under paragraph (d)(3) of this section; (xvi) to the extent that they are used as part of the lead-based paint hazard determination, the results of any previous inspections or analyses for the presence of lead-based paint or other assessments of lead-based paint-related hazards; (xvii) a description of the location, type, and severity of identified lead-based paint hazards and any other potential lead hazards; and (xviii) a description of interim controls or abatement options for each identified lead-based paint hazard and a suggested prioritization for addressing each hazard. If the use of an encapsulant or enclosure is recommended, the report must recommend a maintenance and monitoring schedule for the encapsulant or enclosure.

HUD's regulations at 24 CFR 35.1330 state that interim controls of lead-based paint hazards include paint stabilization of deteriorated paint, treatments for friction and impact surfaces where levels of lead dust are above the levels specified in 24 CFR 35.1320, dust control, and lead-contaminated soil control. Paragraph (a)(1) states that only those interim control methods identified as acceptable methods in a current risk assessment report should be used to control identified hazards.

HUD's regulations at 24 CFR 35.1325 state that abatement should be performed in accordance with methods and standards established either by a State or Indian tribe under a program authorized by EPA or by EPA at 40 CFR 745.227(e) and should be completed by achieving clearance in accordance with section 35.1340. If encapsulation or enclosure is used as a method of abatement, ongoing lead-based paint maintenance activities must be performed as required by the applicable subpart of this part in accordance with section 35.1355.

HUD's regulations at 24 CFR 35.1340(c) state that when clearance is required, the designated party should ensure that a clearance report is prepared that provides documentation of the hazard reduction or maintenance activity as well as the clearance examination. When abatement is performed, the report should be an abatement report in accordance with 40 CFR 745.227(e)(10).

HUD's regulations at 24 CFR 35.1355 provide that (a) maintenance activities must be conducted in accordance with paragraph (a)(2)(6) of this section, except as provided in paragraph (a)(1) of this section.

1. Maintenance activities need not be conducted in accordance with this section if a lead-based paint inspection indicates that no lead-based paint is present in the dwelling units, in common areas, and on exterior surfaces or a clearance report prepared in accordance with section 35.1340(a) indicates that all lead-based paint has been removed.
2. A visual assessment for deteriorated paint, bare soil, and the failure of any hazard reduction measures must be performed at unit turnover and every 12 months.

HUD's regulations at 24 CFR 35.1320(b)(1) state that risk assessments and lead-hazard screens must be performed in accordance with methods and standards established either by a State or tribal program authorized by EPA or by EPA at 40 CFR 745.227(c), (d), and (h) and paragraph (b)(2) of this section.

HUD's Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, chapter 6, section IV, subpart C.3, provides that the owner or manager should keep the following forms or reports to facilitate and document the lead-safe maintenance program:

- Reports of visual assessments.
- A log of the dates of visual assessments.
- An inventory of lead-based paint testing results or presumption of lead-based paint or hazards.
- An inventory of lead hazard controls, if any.
- Lead-safe maintenance work orders, if used.
- Reports of clearance examinations.

HUD's Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, chapter 11, section II, subpart N, provides that lead hazard evaluation, lead hazard control, and maintenance and

monitoring activities associated with interim controls must be documented. Several specific documents are of particular importance.

- Risk assessment or inspection or testing reports. These documents record the findings of any risk assessment or inspection, including any inspection or testing of painted surfaces and the collection and analysis of samples for determination of the lead content in dust, soil, or water. A risk assessment that finds no lead-based paint hazards would also justify issuance of a report.
- Lead hazard control plan. This document explains the schedule of hazard control actions in multifamily housing.
- Notices to occupants. This includes copies of notices to occupants of the results of hazard evaluations (risk assessments, lead-based paint inspections, or paint testing) and the results of lead hazard reduction activities, including clearance.
- Description of work done. For future reference, such as to help them implement the lead hazard control plan effectively, owners should have on file a written description of the nature and locations of the work, its starting and ending dates, who performed it, and any specific suggestions for monitoring. Owners or their property managers who performed or whose employees performed renovation work covered by EPA's Lead Renovation, Repair and Painting Rule (RRP) must keep all records necessary to demonstrate compliance with that rule for at least 3 years after the end of the renovation (40 CFR 745.86). If the renovation work was performed by an outside firm, the owner or property manager should arrange to have ongoing access to those records. If the outside firm is planning to dispose of the records at or after the end of the 3-year period, the owner or property manager should arrange to obtain the records for further use in implementing the lead-hazard control plan.
- Clearance examination reports. These documents record the basis for clearance of the property so that it is ready for occupancy. If the housing (or the renovation) is not federally assisted, the renovation firm's client (typically, the property owner or manager) must be provided a copy of the dust sampling report within 30 days of the completion of the renovation. If the housing (or the renovation) is federally assisted, the property owner or manager must send the report to the affected occupants within 15 days. Cleaning verification is different from clearance, but both require documentation.
- Reevaluation reports. These reports indicate whether the hazard control measures are still in satisfactory condition and whether the dwelling is still in a lead-safe condition. If problems are identified, they prompt corrective action.
- Maintenance and monitoring log. This log records the results of the property owner's or property manager's monitoring visits. Any repairs made because of these visits or notices of defects from occupants should also be recorded.
- Other applicable records. Retain records of worker training in lead-safe work practices; any personal air monitoring, if performed; and correspondence with State and local government agencies on matters such as childhood lead poisoning cases, regulatory compliance (for example, HUD Lead Safe Housing Rule, EPA's RRP rule, Occupational Safety and Health Administration's Lead in Construction standard, EPA-State-tribal waste, and lead regulations), or other related matters.