



Asbestos and Lead-Based Paint Abatement Requirements at Brownfields/Voluntary Cleanup Program Sites

Asbestos-containing materials and lead-based paint have the potential to adversely affect human health and the environment. If properly handled, however, the risks are substantially reduced. The abatement of asbestos-containing material and lead-based paint is regulated by various federal, state and local laws and regulations. Along with the appropriate industry practices, these laws and regulations must be followed during asbestos and lead-based paint abatement projects performed under the Missouri Department of Natural Resources' Brownfields/Voluntary Cleanup Program, or BVCP. Before work on a specific site can begin, Brownfields/Voluntary Cleanup Program approval must be received. The requirements for asbestos and lead-based paint abatement projects under the Brownfields/Voluntary Cleanup Program are detailed in the following sections.

Asbestos Abatement Requirements

In most of Missouri, asbestos-containing material is regulated by the Department's Air Pollution Control Program, according to the Code of Federal Regulations, Title 40, Part 61, Subpart M, National Emission Standard for Asbestos, or NESHAP (40 CFR 61). For information or questions about these regulations, contact the Air Pollution Control Program by calling 573-751-4817 or 800-361-4827, or on the Web at www.dnr.mo.gov/env/apcp/index.html.

There are four areas of Missouri where the Department has delegated asbestos-related activities to local agencies: Kansas City, St. Louis City, St. Louis County and Springfield. These local agencies enforce their own requirements, which may be more stringent than state regulations. It is very important when performing asbestos-related projects in one of these areas that you contact the local agency in that area for their requirements.

Jurisdiction	Agency	Phone
Kansas City	Kansas City Health Department, Air Quality Program	816-513-6314
St. Louis City	St. Louis Division of Air Pollution Control	314-613-7300
St. Louis County	St. Louis County Health Department	314-615-8924
Springfield	Springfield/Greene County Health Department	417-864-1662

Asbestos Abatement Under BVCP Oversight

Prior to any remediation, or clean up, of any hazardous substances at a site, the Brownfields/Voluntary Cleanup Program must review and approve a Remedial Action Plan. An asbestos abatement plan may be included as part of the plan in the event other cleanup is required, or may also be done under a separate Remedial Action Plan.

The Brownfields/Voluntary Cleanup Program also provides oversight for projects where buildings and other structures containing, or are suspected of containing, asbestos material are demolished. Before issuing a Certification of Completion, the Brownfields/Voluntary Cleanup Program must verify asbestos-containing material was both managed and disposed of in an appropriate manner. The requirements for demolition projects are different in some respects from other asbestos abatement projects. For information about demolition project requirements involving asbestos-containing material, see the fact sheet, *Asbestos Requirements for Demolition and Renovation Projects* (PUB2157), available on the Department's Web site at www.dnr.mo.gov/pubs/pub2157.pdf.

Remedial Action Plan

There are certain items to include in the Remedial Action Plan. Your project may not require every item listed below, or may require additional items. The Brownfields/Voluntary Cleanup Program project manager for your site will determine those items on a case-by-case basis.

The Remedial Action Plan should include the following items:

1. Copies of any asbestos inspection or survey reports that include, at a minimum:
 - Tables showing all suspect asbestos-containing material tested and test results, including percent asbestos, type of asbestos and quantity of material (square feet or linear feet).
 - Laboratory raw data reports.
 - Department certification of the asbestos inspector.
 - Maps, drawings or photos. Photos must be color photocopies or prints, not black and white.
2. Copies of all abatement notification forms sent to the Department or Department-delegated local agency.
3. General description of abatement techniques to be used in each area of the building and on each different material (e.g., the work will be done in a sealed area, using glove bags).
4. The name of the contractor who will perform the work and a statement that the contractor is a Missouri licensed asbestos abatement contractor.
5. The name of the person(s) who will perform air monitoring and clearance sampling, including personal monitoring on abatement workers required by the Occupational Safety and Health Administration.
6. Clearance sampling protocols including sample locations, number of samples, sample type (e.g., floor, window sill, window well) and sample goals.
7. Floor plans of buildings before and after building renovations that show the locations of asbestos-containing materials.
8. Final property use goal (i.e. residential or non-residential as defined in the Missouri Risk-Based Corrective Action, or MRBCA, Technical Guidance).

Final Report

When the asbestos abatement work is complete, you must send the Brownfields/Voluntary Cleanup Program a final report that includes, at a minimum, the following items:

1. All air monitoring results, including final clearance testing.
2. Waste disposal documentation, such as landfill tickets.
3. Any field sketches or notes that document sampling and clearance testing. Daily field logs are not required.
4. Draft Operation and Maintenance Plan for any asbestos-containing material that will be left in place.
5. Documentation of deviations from the Remedial Action Plan. The Brownfields/Voluntary Cleanup Program must approve significant deviations from the Remedial Action Plan before implementation.

Leaving Asbestos-Containing Material in Place

There are three situations encountered at Brownfields/Voluntary Cleanup Program sites, where the asbestos-containing material was left in place:

1. Asbestos-containing material inside buildings undergoing renovation.
2. Random asbestos-containing material in historically buried construction and demolition debris.
3. Intentional land filling of asbestos-containing material.

These situations are detailed in the following three sections.

Asbestos-Containing Material in Renovated Structures

State and federal laws and regulations require proper handling and disposal by qualified personnel if asbestos is removed. However, there is no requirement that asbestos-containing material be removed unless it exceeds a threshold quantity and is regulated asbestos-containing material, as described in *Asbestos Requirements for Demolition and Renovation Projects* (PUB2157), located on the Web at www.dnr.mo.gov/pubs/pub2157.pdf. Other than these situations, the Brownfields/Voluntary Cleanup Program does not necessarily require removal of all asbestos-containing materials from structures as a condition for obtaining a Certification of Completion.

It may be necessary or desirable to remove some asbestos-containing materials and leave other material in place in a building that is being renovated. Some examples of materials left in place are asbestos floor tile, asbestos pipe insulation in areas that are inaccessible or will not be modified and transite materials on building exteriors.

Potentially friable asbestos materials to be left in place must be “encapsulated” (coated, fully enclosed, etc.), if they will be impacted, using standard industry practices. As required by regulations, clearance sampling must be conducted following the removal and encapsulation work.

The owner must develop an Operation and Maintenance Plan for material left in place. If an environmental covenant is to be executed for the site related to other aspects of a cleanup (e.g., restricted use soil cleanup standards were used or soil contamination is left on-site under a cap), the Operation and Maintenance Plan can be included as an attachment to the covenant. If no covenant is to be executed, the Operation and Maintenance Plan should be a stand-alone document that must be filed in the property chain of title following Brownfields/Voluntary Cleanup Program approval.

Buried Asbestos-Containing Building Debris

This section applies to asbestos-containing material as a constituent of historical fill material, such as from demolition of a former building and burial of the debris in the building's basement, a situation commonly encountered at urban redevelopment sites. On-site disposal of construction and demolition debris, whether it contains asbestos-containing material or not, is not allowed under current solid waste regulations, but was common practice in the past. Old building debris may have poor geotechnical characteristics and sometimes must be removed to provide a suitable building pad or to install foundation footing. This may result in the excavation of asbestos-containing material or asbestos-containing debris.

In most cases, the Department does not consider it necessary to excavate large volumes of buried demolition debris for the sole purpose of recovering a relatively small amount of asbestos-containing material. However, any material dug up that is suspected asbestos-containing material (e.g., pipe insulation) should be segregated and either tested or assumed to be contaminated and disposed of appropriately. The excavation must be overseen by, and any asbestos-containing material handled by, trained asbestos abatement personnel in accordance with current asbestos regulations. If there is no reason to suspect that large quantities of asbestos-containing material were buried at the site and such materials are not encountered during excavation, no institutional controls are necessary upon closure of the Brownfields/Voluntary Cleanup Program site.

Historically utility piping was made from asbestos-containing material and may also be buried on sites undergoing redevelopment. If buried asbestos-containing piping is intact and undisturbed, it is not necessary to excavate and dispose of it. However, if buried asbestos-containing piping is damaged, removed or will be left exposed as a result of site redevelopment, it needs to be managed and disposed of as asbestos-containing material. All contaminated piping should be handled as a solid waste at a minimum and disposed of at an approved landfill or transfer facility. This includes fragments, non-friable asbestos-containing material and quantities below regulated amounts.

Historical Asbestos Disposal Sites

Large quantities of asbestos-containing material were landfilled prior to the advent of landfill permitting requirements. These materials may include, but are not limited to, scrap from the production of transite building products, wastes from brake pad or drum production or refurbishing, or refractory materials. These wastes were sometimes deposited near the production facility. Under the Brownfields/Voluntary Cleanup Program, remedial action alternatives have included both removal and encapsulation in place. Removal must be performed as an abatement project followed by disposal in a permitted landfill in accordance with asbestos and solid waste regulations. For Brownfields/Voluntary Cleanup Program sites, the installation of an engineered cap always requires placement of an environmental covenant in the property chain of title to provide for maintenance and to prevent disturbance of the landfill and cap, as outlined in the Missouri risk-Based Corrective Action, or MRBCA, guidance. As with all remedial actions overseen by the Brownfields/Voluntary Cleanup Program, a Remedial Action Plan must be reviewed and approved by the Department prior to implementation.

Operation and Maintenance Plan

An Operation and Maintenance Plan template is available on the Brownfields/Voluntary Cleanup Web site at www.dnr.mo.gov/env/hwp/bvcp/hwpvcvcp.htm. The Brownfields/Voluntary Cleanup Program must review and approve your site's Operation and Maintenance Plan.

A copy of the plan should be kept at the site and include the following items:

1. Description of the type and amount of asbestos-containing material.
2. Location of the material in the building(s), including maps and drawings as appropriate.
3. Description of accessibility (i.e., in restricted access area or not).
4. Procedure and schedule for regular inspections.
5. Contingency plans to be performed in the event the asbestos-containing material is damaged or must be disturbed during renovation, maintenance or repair.

Certification of Completion

The Brownfields/Voluntary Cleanup Program must verify the asbestos-containing material was properly managed and disposed of before issuing a Certification of Completion. If you are leaving asbestos-containing material in place, your site's Certification of Completion will be conditional on you following the Operation and Maintenance Plan. The Certification of Completion will note the presence of asbestos-containing material and the existence of an Operation and Maintenance Plan. Both the Operation and Maintenance Plan and the Certification of Completion must be filed in the property chain of title as an institutional control. This is done to make sure that future occupants, maintenance personnel, contractors, owners and buyers are aware of the presence of asbestos-containing material and of the Operation and Maintenance requirements necessary to maintain safe conditions.

For Asbestos Information

For more information about asbestos and state and federal laws and regulations regarding hazardous waste, see:

- Missouri Department of Natural Resources fact sheet, *Asbestos: What is it and why is it a concern?* (PUB2077), www.dnr.mo.gov/pubs/pubs2077.pdf.
- For specific requirements relating to nonfriable asbestos, see the Department's publication *Management of Nonfriable Asbestos Containing Materials* (PUB2156), www.dnr.mo.gov/pubs/pub2156.pdf
- U.S. Environmental Protection Agency Asbestos home page: www.epa.gov/asbestos.

Lead-Based Paint

Removal of flaking and peeling lead-based paint and lead-based paint dust that may be a hazard to human health or the environment is required for renovation projects overseen by the Brownfields/Voluntary Cleanup Program. Paint in good condition may be left in place provided that exposures are minimized and appropriate institutional controls are put in place.

Lead-Based Paint Abatement Under BVCP Oversight

Abatement projects must follow all state and federal regulations, including clearance sampling, to satisfy Brownfields/Voluntary Cleanup Program standards pertaining to lead-based paint (see MRBCA, Appendix N at www.dnr.mo.gov/env/hwp/mrbca/docs/mrbca-append6-06.pdf). Disposal of all wastes generated during abatement projects must also follow all state and federal regulations. Wastes from lead-based paint abatement may be hazardous or special waste.

The Brownfields/Voluntary Cleanup Program provides oversight of projects in which buildings and other structures are demolished. Buildings that contain lead-based paint, or are suspected of containing lead-based paint, and are being demolished under Brownfields/Voluntary Cleanup Program oversight require an approved Remedial Action Plan and Final Report.

The Brownfields/Voluntary Cleanup Program must verify lead-based paint is properly managed and disposed of prior to issuing a Certification of Completion. The requirements of demolition projects will be different in some respects from other lead-based paint abatement projects. Paint residue and peeling or flaking paint must be removed from the structural surfaces, and tested and handled as hazardous or special waste as appropriate. Paint adhered to the surface of demolition debris can be disposed of as demolition waste. For the specific requirements of demolition projects involving lead-based paint, refer to the Department's publication *Disposal of Demolition Wastes Contaminated with Lead and/or Other Heavy Metals* (PUB2002), located on the Web at www.dnr.mo.gov/pubs/pub2002.pdf.

Remedial Action Plan

If a Certification of Completion is to be obtained from the Department, the site must be enrolled in the Brownfields/Voluntary Cleanup Program with a signed letter of agreement. The Brownfields/Voluntary Cleanup Program must review and approve all Remedial Action Plans prior to implementation.

Lead-based paint plans may be included as part of a general Remedial Action Plan for a Brownfields/Voluntary Cleanup Program site in the event other remediation is required. Lead-based paint abatement may also be done under a separate Remedial Action Plan.

Lead-based paint abatement standards for final clearance are shown in the table below (also refer to MRBCA located on the Web at www.dnr.mo.gov/env/hwp/mrbca/mrbca.htm). These standards were developed for residential properties. If a Brownfields/Voluntary Cleanup Program participant wishes to close a site using less stringent standards, a site-specific risk assessment or risk management may be necessary.

Table I: Lead Paint Clearance Criteria

Sample Location	Clearance Levels¹ Micrograms per sq. ft.
Floor	40
Window Sills (interior)	250
Window Wells (interior)	400

1 EPA, 40 CFR 745.227(e)(8)(viii)

Clearance sampling for lead-based paint abatement must be conducted for building surfaces on which abatement took place or on surfaces exposed to lead paint and dust during abatement. Clearance sampling must be conducted following abatement activities and before any further renovation takes place. This will ensure all lead paint and dust from abatement activities have been cleared and will not be left under new floor and wall coverings.

The Remedial Action Plan should include, but not be limited to, the following information:

1. Copies of any lead-based paint inspection or survey reports that include, at a minimum:
 - Tables showing all suspect paint tested and test results including percent lead, paint color and square footage.
 - Laboratory raw data reports.
 - Maps, drawings or photos. Photos must be color photocopies or prints.

2. Copies of all abatement notification forms sent to the Department or Department delegated agency.
3. General description of abatement techniques to be used in each area of the building including workspace isolation, paint removal, dust suppression and final cleaning.
4. The name of the person(s) who will perform abatement work, air monitoring and clearance sampling, documentation of credentials and certifications.
5. Clearance sampling protocols including sample locations, number of samples, sample type (floor, window sill, window well) and sample goals.
6. Floor plans of buildings before and after building renovations which show the location of lead-based paint.
7. Final property use goal (i.e. residential or nonresidential as defined in MRBCA).

Final Report

When the lead abatement work is complete, you must send the Brownfields/Voluntary Cleanup Program a final report that includes, at a minimum, the following items:

1. Final clearance wipe sampling results along with maps or drawings of sample locations.
2. Waste disposal documentation, such as landfill tickets.
3. Any appropriate field sketches or notes that document sampling and clearance testing. Daily field logs are not required.
4. Description of any lead-based paint to remain in place, including drawings or maps of location(s).
5. Operations and Maintenance Plan for any lead-based paint remaining.
6. Documentation of deviations from the Remedial Action Plan. Significant deviations from the Remedial Action Plan must have Brownfields/Voluntary Cleanup Program approval prior to implementation.

Leaving Lead-Based Paint in Place

Encapsulation usually involves recoating lead painted surfaces with suitable encapsulants such as epoxy paint, concrete, drywall, etc. If lead-based paint is to be left in the building, an Operation and Maintenance Plan must be prepared. For Brownfields/Voluntary Cleanup Program sites, the Department requires the Operations and Maintenance Plan be filed in the property chain of title as an institutional control to ensure that future occupants, maintenance personnel, contractors, owners and prospective buyers are aware of the presence of lead-based paint and of the Operations and Maintenance Plan requirements necessary to maintain safe conditions.

Operation and Maintenance Plan

An Operation and Maintenance Plan template is available on the Brownfields/Voluntary Cleanup Web site at www.dnr.mo.gov/env/hwp/bvcp/hwpvcvcp.htm. The Brownfields/Voluntary Cleanup Program must review and approve your site's Operation and Maintenance Plan. A copy of the plan should be kept at the site and include the following items:

1. Description of the type and amount of lead-based paint.
2. Location of the material in the building(s), including maps and drawings as appropriate.
3. Description of accessibility (i.e., in restricted access area or not).

4. Procedure and schedule for regular inspections.
5. Contingency plans to be performed in the event the lead-based paint is damaged or must be disturbed during renovation, maintenance or repair.

Certificate of Completion

The Brownfields/Voluntary Cleanup Program must verify the lead-based paint was properly managed and, if needed, disposed of before issuing a Certification of Completion. If you are leaving lead-based paint in place, your site's Certification of Completion will be conditional on you following the Operation and Maintenance Plan. The Certification of Completion will note the presence of lead-based paint and the existence of an Operation and Maintenance Plan. Both the Operation and Maintenance Plan and the Certification of Completion must be filed in the property chain of title as an institutional control. This is done to make sure future occupants, maintenance personnel, contractors, owners and buyers are aware of the presence of lead-based paint and of the Operation and Maintenance requirements necessary to maintain safe conditions.

More Lead-Based Paint Information

For more information about lead-based paint abatement, see:

- U.S. Environmental Protection Agency Office of Lead Programs: www.epa.gov/lead.
- HUD Office of Healthy Homes and Lead Hazard Control: www.hud.gov/offices/lead.
- The HUD Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing: www.hud.gov/offices/lead/lbp/hudguidelines/index.cfm.

How can I get copies of environmental laws and regulations?

- Missouri Revised Statutes, or RSMo, including the Missouri Hazardous Waste Management Law, are available through the Revisor of Statutes, 573-526-1288, or online through the Missouri General Assembly Web site at www.moga.mo.gov.
- Missouri Code of State Regulations, or CSR, is available through the Missouri Secretary of State, 573-751-4015, or online at www.sos.mo.gov/adrules/csr/csr.asp.
- Code of Federal Regulations, or CFR, is available at federal depository libraries or online at www.gpoaccess.gov/cfr/index.html. To purchase a copy, contact a U.S. Government Bookstore, the U.S. Government Printing Office or a commercial information service, such as the Bureau of National Affairs.

For More Information:

Missouri Department of Natural Resources
Division of Environmental Quality
Hazardous Waste Program
P.O. Box 176, Jefferson City, MO 65102-0176
800-361-4827 or 573-751-3176
www.dnr.mo.gov/env/hwp/index.html
E-mail: hazwaste@dnr.mo.gov

Air Pollution Control Program
P.O. Box 176, Jefferson City, MO 65102-0176
800-361-4827 or 573-751-4817
www.dnr.mo.gov/env/apcp/index.html
E-mail: cleanair@dnr.mo.gov