

## **4.8 ASBESTOS EXPOSURE CONTROL**

### **National Park Service Policy for Asbestos Exposure Control**

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Parks will establish a comprehensive asbestos management and exposure control program designed to protect employees, volunteers and the public, including all building occupants from unacceptable exposure to airborne asbestos. The asbestos exposure control program will provide for compliance with all applicable federal, state and local regulations.

#### **References**

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1. 29 CFR 1910.1001. Asbestos in General Industry
2. 29 CFR 1926.1101. Asbestos in Construction
3. 29 CFR 1910.1200, Hazard Communication
4. 40 CFR 61.56 National Emission Standards for Hazardous Air Pollutants (NESHAPS)
5. 40 CFR 61.154 Standard for Active Waste Disposal Sites
6. 40 CFR 763. Asbestos Hazard Emergency Response Act.
7. ASTM 1368-99, Standard Practice for Visual Inspection of Asbestos Abatement Projects
8. Sheehy, J.W., T.C. Cooper, D.M. O'Brien, J.D. McGlothlin, and P.A. Froehlich. 1989. Control of Asbestos Exposure During Brake Drum Service. NIOSH Pub 89-121.
9. NPS-36 Government Furnished Housing Management Guideline 10.NPS 76 Housing Design and Rehabilitation Guideline.
10. NPS. Health Hazards of Asbestos, Lead, and Radon Gas in National Park Service Housing, Interim issue, July 25 1997
11. NIH pub 89-1647. 1989. How to Quit Smoking—And Quit for Keeps

#### **Scope**

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This section applies to all users of asbestos and all facilities owned or managed by the park. Requirements are intended to provide protection of employee and volunteers from all unacceptable occupational exposure; of occupants of NPS-owned or managed facilities; and of occupants of housing.

## Exposure Limits

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*Permissible Exposure Limit (PEL).* Unprotected workers shall not be exposed to airborne asbestos fiber concentrations greater than 0.1 fiber per cubic centimeter (0.1 f/cc) as an eight-hour time-weighted average (TWA).

*Excursion Limit.* Workers shall not be exposed to asbestos concentrations in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) averaged over a sampling period of 30 minutes.

*Non-Occupational Exposure Limit.* Ambient concentrations of asbestos in air in occupied spaces will not exceed 0.01 f/cc. The non-occupational exposure limit will apply to employees or occupants of facilities and spaces not engaged in asbestos work.

## Definitions

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*Asbestos-Containing Material (ACM)* is any material containing more than one percent asbestos. The type and percentage of asbestos in a material must be determined by laboratory analysis<sup>1</sup>. Note that some states and local jurisdictions regulate asbestos even when it occurs at levels less than 1% in products.

*Presumed Asbestos-Containing Material (PACM)* is any thermal system insulation or surfacing material that has been sprayed or trowelled on for which sampling and laboratory analysis is not available.

*Suspected Asbestos-Containing Material* is any building material including thermal system insulation or miscellaneous material, but excluding metal, wood, fibrous glass or neoprene, found in the interior of structures installed prior to 1980.

*Friable Asbestos* is ACM or PACM, which may be crumbled or reduced to powder by hand pressure. Friable ACM or PACM is more likely to release asbestos fibers and so it is more hazardous than non-friable ACM or PACM.

*Regulated Asbestos Containing Material (RACM)* is ACM that is subject to regulation under 40 CFR 61.154 NESHAP. The following types of ACM are considered RACM; (a) friable ACM, (b) any packing, gasket, resilient floor covering or asphalt roofing ACM product (category I non-friable ACM under NESHAP) that has either become friable or that will be, or has been, subjected to sanding, grinding, cutting or abrading; and (c) any other non-friable ACM (Category II) that has a high probability of becoming, or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

<sup>1</sup>PLM analysis as described in Appendix A of 40 CFR 763, NIOSH Method 9002, or OSHA I-191

*Class I Asbestos Work* means an activity involving the removal of Thermal System Insulation (TSI) and surfacing ACM and PACM.

*Class II Asbestos Work* means activities involving the removal of ACM, which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

*Class III Asbestos Work* means repair and maintenance operations, where “ACM,” including TSI and surfacing ACM and PACM, is likely to be disturbed.

*Class IV Asbestos Work* means maintenance and custodial activities during which employees contact, but do not disturb ACM or PACM, and activities to clean up dust, waste and debris resulting from Class I, II and III activities.

*Regulated Areas* are those areas where Class I, II and III asbestos work is conducted; any area where debris and waste from such work accumulates; and, work areas where the fiber concentration may exceed the permissible exposure limit (PEL) of 0.1 fibers per cubic centimeter (f/cc). Regulated areas are used to control access to and from operations where asbestos work is being conducted or other areas where an asbestos hazard exists.

*Competent Person* means a person who is capable of identifying existing asbestos hazards in the workplace, selecting the appropriate control strategy for asbestos exposure, and who has the authority to take prompt corrective measures to eliminate them. In addition, for Class I and Class II work, it means a person who is specially trained in a training course that meets the criteria of EPA’s Model Accreditation Plan (40 CFR 763) for supervisor or its equivalent. For Class III and Class IV work, it means a person who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).

## **Program Elements**

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*Managing Asbestos-Containing Materials.* Intact and undisturbed asbestos materials do not pose a health risk. The mere presence of asbestos in a building does not mean that the health of the occupants is endangered. When asbestos-containing material (ACM) is in good condition and is properly managed, the risk of asbestos-related disease is minimal. However, when ACM is damaged, cut, sanded or deteriorates, it may release asbestos fibers into the air and become hazardous. In order to ensure that asbestos does not become hazardous, asbestos sources must be identified and either managed in place or removed from the workplace or occupied environment. To accomplish this requires planning, periodic site review, management of contracts, proper disposal following removal and recordkeeping.

1. *Use of Asbestos.* All new installation of asbestos-containing material is prohibited, except where there is no satisfactory substitute.
2. *Identifying Asbestos Containing Materials.* The park will identify ACM and PACM in all facilities that it manages. The basis for determining the presence or absence of asbestos in park facilities will be either by:
  - a. *Completed comprehensive inspections.* Comprehensive building inspections must be performed by an EPA/AHERA-accredited inspector according to the protocols set forth in 40 CFR 763. Form 1. *Asbestos Inspection* (see Appendix A) reflects the information that must be captured during an asbestos inspection. Unless an inspection is conducted for demolition of a building or major renovation, the inspection is not expected to utilize destructive techniques to obtain samples from materials that are otherwise not accessible. However, areas or material not sampled should be identified in the inspection report. All suspect materials that are not sampled should be identified as PACM. Comprehensive inspections should also include written recommendations regarding the presence of any friable damaged or significantly damaged ACM.
  - b. *Limited sampling.* Bulk sampling must be conducted by an EPA/AHERA-accredited inspector. Samples must be analyzed by a laboratory accredited by the National Voluntary Laboratory Accreditation Program. Data from limited sampling of suspect materials shall be tracked through completion of the Form 2 Asbestos Bulk Sampling (see Appendix A) or an equivalent data recording mechanism. The exact sample location must be labeled with a traceable identification number at the time of collection.
  - c. *The year the facility was built.* Facilities built before 1980 with no sampling records will be listed in the inventory to contain PACM. Those built after 1980 will be assumed to be asbestos-free, although future sampling may be conducted to validate this presumption. Facilities with abatement records or documentation through contracts or building specifications indicating materials are free of asbestos will not require further sampling.
3. *Inventory of ACM and PACM.* The park will develop and maintain an inventory of all identified ACM and PACM for all park managed facilities. An inventory of ACM at each park allows managers to systematically plan and execute asbestos management and exposure controls rather than engage in crisis management once ACM is discovered — frequently coincident with an uncontrolled fiber release incident. The inventory eliminates repeated analysis of suspected or presumed materials. Inventories will include the following information: a unique facility identifier, the year the facility was built, the presence and location of ACM or PACM, its condition and potential for damage, and the priority order in which comprehensive asbestos surveys or further (bulk) sampling should be conducted.

4. Asbestos Management Plan. Each park will implement an Asbestos Management Plan<sup>2</sup> if ACM or PACM is identified in park-managed facilities. The plan will describe the park's systematic and risk-prioritized procedures for managing asbestos. Park Asbestos Management Plans will include the following:
  - a. Designation of a Park Asbestos Exposure Control Coordinator (PAECC) responsible for coordinating the implementation of the Park Asbestos Management Plan.
  - b. Methods for developing and maintaining an inventory of ACM and PACM.
  - c. Labeling and hazard communication procedures.
  - d. Inspection procedures.
  - e. Work practice controls and worker procedures to be used during maintenance activities, repair, removal and disposal that may disturb ACM.
  - f. Procedures for response to uncontrolled fiber release episodes.
  - g. Waste disposal procedures.
5. *Notification and Labeling*. Informed persons are less likely to unknowingly disturb ACM and cause the release of fibers into the air. The park shall use a combination of the following methods to notify employees, contractors or building occupants of the presence of ACM/PACM:
  - a. Annual asbestos awareness training will be provided to all employees. Training will cover what asbestos is; its common uses and materials in which it is found; human health hazards associated with exposure; facilities where it is located; how to recognize and report damage and deterioration; how to avoid damaging it; and how the park is managing asbestos in its facilities.
  - b. The asbestos inventory will provide current information on the exact location of ACM or PACM identified in park facilities and will be the primary resource for notification information to be used by maintenance personnel who conduct or initiate work that may impact ACM or PACM. Those individuals must consult the inventory to ensure that appropriate worker notification is accomplished. Contract projects must include specifications to address work that will impact ACM or PACM.

<sup>2</sup>Often referred to as an Operations and Maintenance (O&M) Plan.

- c. A notification letter will be provided to each housing resident or head of household prior to occupancy to identify the presence, location and condition of ACM or PACM. An EPA informational pamphlet entitled *Asbestos in the Home, A Homeowner's Guide*, describing the health concerns, materials that may contain asbestos, how to avoid disturbing asbestos, and what to do if asbestos is damaged, will be provided with the notification letter.
- d. All identified ACM in non-housing facilities or non-occupied spaces of housing facilities will be labeled to provide additional notification and warning as follows:

DANGER:  
CONTAINS ASBESTOS FIBERS  
AVOID CREATING DUST  
CANCER AND LUNG DISEASE HAZARD

Any ACM newly identified by a comprehensive asbestos survey or sampling, shall be promptly labeled.

- 6. *Annual Surveillance.* Visual surveillance of all identified ACM and PACM in the park inventory will be conducted annually to determine changes in condition. Damaged suspect materials must either be sampled to confirm the presence of asbestos or repaired as PACM. Inspections should confirm that ACM has been properly labeled, identify ACM or PACM that has been damaged and the extent of damage, indicate the suspected source of any damage or potential for damage, note whether any ACM/PACM dust or debris is present, and determine friability. Inspections will be documented on Form 3 *Asbestos Surveillance* (see Appendix A) or equivalent. Personnel conducting surveillance activities shall be AHERA-accredited inspectors or trained by an AHERA-accredited inspector to evaluate the condition of ACM/PACM. The inventory will be updated to reflect any changes noted. Appropriate follow-up action will be taken to control observed potential exposure posed by the ACM or PACM.
- 7. *Response Actions.* Whenever ACM or PACM is damaged, actions will be taken to repair the damage and control the release of fibers. Table 1 provides recommended guidelines for routine response actions to be implemented whenever friable ACM is identified.



**Table 1: Table of Recommended Response Actions for Friable Asbestos Containing Material**

PHYSICAL ASSESSMENT	RECOMMENDED RESPONSE ACTION
Damaged or Significantly Damaged TSI	Clean up asbestos dust or debris and remove or repair as soon as possible
Damaged friable surfacing or misc. material	Clean up asbestos dust or debris and repair, encapsulate, enclose or remove
Significantly Damaged friable surfacing or misc. material	Immediately isolate if necessary to protect human health and environment, and/or remove, enclose or encapsulate
Friable TSI, surfacing or misc. material w/ Potential for Damage	Implement preventive measures if in high frequency/occupancy areas, continue to monitor according to asbestos management plan
Friable TSI, surfacing or misc. material w/ potential for significant damage	Implement preventive measures if in high frequency/occupancy areas and increase surveillance; or repair, encapsulate or enclose if feasible; or remove

**TSI – Thermal System Insulation**

Damaged – Damage over <10% of area or <25% if localized (surfacing & misc. material); missing jackets on <10% of TSI or <10% evenly distributed damage, <25% if localized.

Significantly Damaged - Damaged over >10% of area, >25% if localized); missing jackets on >10% of TSI or >10% evenly distributed damage, >25% if localized  
 Potential for Damage – Potential for Damage, based on moderately frequented area, moderate vibration impact or moderate air erosion

Potential for Significant Damage – Potential for Significant Damage, based on highly frequented area, high vibration impact or high air erosion

- a. Response actions for friable ACM may be conducted by Class III maintenance workers provided that it involves small-scale, short-duration<sup>3</sup> maintenance activities, as described by EPA in 40 CFR 763. Satisfactory completion of response actions involving small-scale, short-duration maintenance activities can be determined by a thorough visual inspection.
- b. Responses other than small-scale, short-duration maintenance activities must be designed by an AHERA accredited Project Designer and conducted by AHERA accredited abatement workers. Satisfactory completion of the work must be determined by visual inspection and environmental air sampling (see program element 15, Project Completion and Clearance).

<sup>3</sup>Small-scale, short-duration means maintenance activities which involve removal of less than 3 ft<sup>2</sup> of surfacing ACM or 3 linear feet of TSI, or that will require less than one day to complete.

## 8. *Fiber Release Episodes*

As long as ACM is present there remains the potential for a fiber release. Therefore procedures must be outlined to address any unintentional or uncontrolled releases. Any disturbance of friable ACM must be reported to the PAECC for initial evaluation and action. Access to the area must be prohibited until an estimate of the extent of contamination can be made. It is recommended that air sampling be conducted in and around the affected area for asbestos fibers as soon as practicable.

Special procedures are generally needed to minimize the spread of fibers throughout the building after an asbestos fiber release occurs, such as the partial collapse of an ACM ceiling or wall, accidental disturbance of ACM or a large breach in a containment barrier for a maintenance or abatement project. Under AHERA regulations, a major fiber release is defined as one involving more than three square feet or three linear feet of ACM. The procedures followed will vary according to the amount of ACM affected, the extent of fiber release, the relationship of the release area to the air handling systems, and whether the release site is accessible to building occupants.

In general, for major fiber releases, wet the ACM and isolate the area by closing doors and erecting temporary barriers to restrict airflow. Restrict access to the site to prevent persons not involved in the clean-up operation from inadvertently entering the area. If asbestos fibers could enter the ventilation system, shut down the supply and return-air to the affected area and seal off the system to prevent fiber entry. The final steps will include a thorough cleanup, a careful inspection and final clearance air monitoring to verify satisfactory cleanup. Response actions for any major release episode must be developed by an AHERA-accredited Project Designer. Depending on the quantity of regulated asbestos-containing material (RACM), EPA notification may be required (40 CFR 61, NESHAP).

Minor fiber release episodes, which involve less than three square feet or three linear feet of ACM, can be addressed by standard wet cleaning and HEPA filter vacuuming techniques. Although an accredited Project Designer is not required to design the response plan, the cleanup must be conducted by properly trained personnel following appropriate safe work practices.

*Asbestos Repair, Removal, Abatement.* Whenever it is necessary to repair, remove, abate or otherwise disturb asbestos, safe work practices and personal protective equipment must be used to minimize asbestos exposure to workers, occupants of buildings and the public. Repair, removal and abatement of asbestos shall be conducted in accordance with the requirements of 29 CFR 1926.1101, applicable federal, state and local regulations, and the requirements set forth here.



9. *Locate ACM.* Prior to initiation of maintenance, repair, remodeling, renovation or demolition activities, ACM will be located by referencing the park's ACM/PACM inventory. Suspect materials not included on the inventory will either be sampled to determine asbestos content or will be presumed to contain asbestos for purposes of determining worker protection and compliance requirements.
10. *Authorized Workers.* Asbestos repair, removal and abatement shall be conducted only by workers who have received the appropriate level of EPA/AHERA-accredited training (see Table 2 in Section C, Training).
11. *Exposure assessment.* Representative eight-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute, short-term employee exposures shall be determined for those operations most likely to produce exposures above the excursion limit for employees in each work area. Details for exposure assessment requirements are found in Appendix B.
12. *Regulated Areas.* Regulated areas will be established whenever Class I, II or III asbestos work is being conducted to control access to the work site or hazard area. Regulated areas will be demarcated using barriers or barricades, critical barriers, or negative pressure enclosures. They must be labeled with the following warning:

DANGER  
ASBESTOS  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING  
ARE REQUIRED IN THIS AREA

13. *Competent Person.* Parks will ensure that all asbestos work performed within regulated areas is supervised by a competent person. See Appendix C for competent person roles and responsibilities.
14. *Exposure Control.*
  - a. *Engineering and Work Practice Controls.* All general and work class-specific requirements and prohibitions of 29 CFR 1926.1101 will be followed when conducting asbestos work.
  - b. *Respiratory Protection.* All persons entering a regulated area where employees are required to wear a respirator shall be supplied with the appropriate respirator, which will be used in accordance with the requirements of Section 4.3, Respiratory Protection. Respirator use is required during the following work conditions:

- Class I asbestos work.
- Class II asbestos work when ACM is not substantially intact.
- Class II and Class III work when not using wet methods or when no negative exposure assessment has been conducted.
- Class III when thermal system insulation or surfacing ACM or PACM is being disturbed.
- Class IV when performed in regulated areas.
- Any operation that may expose an employee above the PEL or excursion limit.

#### 15. *Project Completion and Clearance.*

A clearance inspection will be conducted at the completion of all asbestos jobs. At a minimum, clearance will consist of a visual inspection following guidance provided in ASTM 1368-99, *Standard Practice for Visual Inspection of Asbestos Abatement Projects*. Environmental sampling is not necessary for clearance of small-scale, short-duration projects for response to minor release episodes or for maintenance and repair operations (class III work). For all other asbestos work, environmental sampling must be included in clearance.

Phase Contrast Microscopy (PCM) (NIOSH Method 4700) may be used for environmental sample analysis for routine clearance. Transmission Electron Microscopy (TEM) (NIOSH Method 4702) should be used to analyze suspicious PCM results and for large, complex projects. Aggressive sampling techniques will be used for clearance of projects conducted in negative pressure enclosures. Environmental sampling for PCM and TEM methods will follow the methods presented in 40 CFR 763 (ASHERA).

#### 16. *Medical Surveillance.*

Parks must provide medical surveillance for all employees engaged in Class I, II and III work who are exposed at or above the permissible exposure limit for a combined total of 30 or more days per year. Workers that conduct only Class II or Class III operations on intact material following required exposure control practices for one hour or less, including cleanup, are not included.

In addition, medical clearance is required for those employees required to wear a negative pressure respirator (refer to Section 4.3, Respiratory protection).

Required medical examinations must be performed by or under the supervision of a licensed physician, and are provided at no cost to the employee at a reasonable time and place.

17. *Environmental Protection and Notification.* Facilities with ACM/PACM that are scheduled for demolition or significant renovation, must first be evaluated to determine the existence and quantity of regulated asbestos-containing material (RACM). For those facilities containing RACM, EPA notification is required and, depending on the quantity of RACM, it may be subject to specific emission control procedures. Refer to NPS Environmental Management Program guidance for environmental protection and notification requirements.
18. *Asbestos Waste Shipping and Disposal.* Materials contaminated with asbestos that cannot be decontaminated, are considered asbestos-containing waste and must be properly disposed. This may include furniture, equipment and PPE, in addition to construction materials. All asbestos-containing waste materials required to be removed during renovation or prior to or following demolition must be handled, shipped and disposed in accordance with federal, state and local regulations. Refer to NPS Environmental Management Program guidance for asbestos waste disposal requirements.

*Information and Training.* Information and training are key to hazard recognition and to appropriate decision-making regarding asbestos management and protection of workers, occupants and the public. Training requirements vary with responsibility and activity.

#### 19. Worker Training.

Training is essential to the success of the park's Asbestos Exposure Control Program. Training provides a background on asbestos uses and health hazards, asbestos regulations, respiratory and other personal protection equipment, and key concepts of asbestos hazard control presented in this Asbestos Management Plan. Workers and building occupants who are trained and informed are at greatly reduced risk of exposure to asbestos fiber release due to improper work practices.

All custodial and maintenance workers, abatement workers and contractors, or other persons involved in asbestos-related activities must receive training if they have the potential to disturb ACM, enter an asbestos regulated area or perform ACM-related activities. Table 2 lists the training requirements for each type of asbestos operation.

20. *Smoking Cessation.* Parks will provide smoking cessation material to asbestos workers on request. At a minimum, provide employees a copy of National Institutes of Health publication *How to Quit Smoking — And Quit for Keeps*, NIH pub 89-1647. It is recommended that additional smoking cessation programs, such as that available through the American Lung Association, [www.lungusa.org/tobacco/quitting\\_smoke.html](http://www.lungusa.org/tobacco/quitting_smoke.html), be made available.

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
Design of projects which involve removal of acm or work in proximity of acm/pacm	Architects, engineers, planners, estimators(p&e's)	Abatement project designer	3 Day asbestos project designer course	Yes 1 day	• 40 CFR 763.92
Review of projects to determine adequacy of control	Engineers, industrial hygienists, safety personnel	Abatement project designer	3 day abatement project designer course	Yes 1 day	• 40 CFR 763.92
Person responsible for asbestos removal, encapsulation, enclosure and/or repair (class I and II asbestos work)	Asbestos abatement supervisor or competent person, qualified person, roicc personnel	Asbestos abatement contractor/supervisor	5 day asbestos abatement contractor/supervisor course	Yes 1 day	29 CFR 1926.1101(o)(4)(i) • 40 CFR 763.92 • 40 CFR 61 Subpart M
Person responsible for maintenance and housekeeping (class III and IV asbestos work)	Maintenance and housekeeping supervisors, competent, qualified person	None	16 hour operations and maintenance course	Yes Not specified	29 CFR 1926.1101(o)(4)(ii)
Physical gathering of suspected acm/pacm samples for lab analysis	Safety personnel industrial hygienist, p&e's, & facility inspectors	Asbestos inspector	3 Day asbestos inspector course	Yes 1/2 day	29 CFR 1926.1101(k)(5) • 40 CFR 763.92

Development of asbestos management plans & asbestos O&M plans	Facility inspectors, safety personnel & industrial hygienist	Asbestos management planner	2 day asbestos management planner course (Inspector accreditation required as prerequisite)	Yes 1/2 day	• 40 CFR 763.92
Laboratory analysis of airborne sample	Industrial hygiene, safety, laboratory personnel	Proficiency analytical testing (pat) rounds	5 day Niosh 582 course or equivalent	Yes (Pat)	29 CFR 1910.1001 APP. A 29 CFR 1926.1101 APP. A
Personnel who engage in class I or class II work that requires critical barriers or negative pressure enclosures	Abatement workers	asbestos abatement workers	4 day asbestos abatement worker course; or 5 day asbestos abatement contractor/supervisor course	Yes 1 day	29 CFR 1926.1101(k)(9) • 40 CFR 763.92

**Table 2: Asbestos Training And Certification Requirements Listed By Type Of Operation**

TYPE OPERATION	TYPE PERSONNEL	TYPE ACCREDITATION REQUIRED	INITIAL TRAINING REQUIREMENT	ANNUAL RECERT OR REFRESHER & LENGTH	REGULATORY CITATION
Personnel who engage in class ii work involving roofing, flooring, siding material, ceiling tiles, or tran site pannels removed substantially intact	Abatement workers	None	8-hour asbestos course, including hands-on training	Yes Not specified	29 CFR 1926.1101(k)(9)
Personnel who engage in class III operations only	Maintenance workers	None	16-hour operations & maintenance course. Requirements are relaxed when only one generic category of building material in class III work is done.	Yes Not specified	29 CFR 1926.1101(k)(9)• 40 CFR 763.92(a)(2)
Personnel who engage in class iv operations only and housekeeping where acm or pacm is present	Maintenance & custodial workers	None	2-hour asbestos awareness course	Yes 2 hours	29 CFR 1910.1001(j)(7) 29 CFR 1926.1101(k)(9)• 40 CFR 763.92(a)(1)
Responsible for overall asbestos program at unit	Asbestos exposure control program coordinator	Letter of designation from park superintendant	2-hour asbestos awareness course. familiarity with the asbestos management plan.	Yes 2 hour	Recommended training
Air sampling	Asbestos workplace monitors and clearance samplers	None	2-days and on the job training	None	Recommended training
Automotive brake and clutch	Auto mechanics	None	2-hour awareness plus hands-on training	None	29 CFR 1910.1001(j)(7) 29 CFR 1915.1001 APP. L
General industries operations above pel (not otherwise classified)	Various	None	2-hour awareness and operation specific	Yes Not specified	29 CFR 1910.1001(j)(7)

\*Training and certification requirements apply to all persons performing asbestos-related work as workers, supervisors, inspectors or project designers working in public and commercial buildings (which includes all park-owned and operated buildings)



## 21. Record-Keeping.

*Record-Keeping.* Failure to collect and maintain accurate and complete records of asbestos-containing material identifications, management activities and exposure evaluations can lead to duplication of costly data-gathering efforts, unnecessary procedures, fiber release and contamination events, unacceptable personal exposure, and legal liability — all of which are avoidable.

Record-keeping is an important part of effective asbestos management. The park's inventory of ACM/PACM may be effectively updated and accessed by using an electronic format such as a database. However, hard copy files must be maintained to provide an historical record of sampling, asbestos-related facility activities, annual surveillance and worker/occupant training.

The Park will maintain asbestos-related files on each structure containing ACM or PACM. These files will contain the following records:

- a. Asbestos abatement or maintenance activities records, including documents/data related to ACM/PACM repair or removal (small-scale, short-duration or abatement); cleanup records or clearance sampling associated with asbestos repair, removal or fiber release episodes; ACM disposal records; and EPA notification for demolition/renovation. These records will be retained for as long as the park retains ownership of the facility.
- b. Bulk sampling, including any comprehensive asbestos inspections, data from limited sampling or data used to demonstrate that PACM is not asbestos-containing. These records will be retained for as long as they are relied upon to determine the existence of asbestos or rebut the presumption of ACM. All written records providing information on the identification, location and quantity of ACM and PACM, shall be maintained by the park for the duration of ownership and shall be transferred to successive owners of such buildings or facilities.
- c. Annual surveillance, including documentation of annual facility inspections conducted to determine the condition of existing ACM/PACM. These records will be retained for as long as the park retains ownership of the facility.
- d. Worker and occupant training and notification, including the records of awareness training and disclosure notices provided to building occupants. Training records or certifications of personnel contracted to conduct comprehensive inspections and abatement or cleanup activities for that specific facility will also be kept. These records will be retained for as long as the park retains ownership of the facility. Records of required notification of the identification and quantity of ACM and PACM shall be transferred to successive owners.

The following asbestos worker exposure related records will be maintained:

- a. Objective data used to demonstrate that worker exposures will not exceed the PEL or excursion limit (negative exposure assessment data). These records will be retained for the duration of employment plus one year.
- b. Personal exposure monitoring data will be maintained for the duration of employment plus one year.
- c. Medical surveillance records will be maintained for the duration of employment plus 30 years.
- d. All employee-training records. These records will be maintained for duration of employment plus one year.

## **Appendix A: Forms**

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Form 1. Asbestos Inspection

Form 2. Asbestos Bulk Sampling

Form 3. Asbestos Surveillance

Form 4. Asbestos Repair or Removal Tracking

# Form 1. Asbestos Inspection

Building:

Inspector:

Date:

LOCATION:		MATERIAL CHARACTERIZATION				PHYSICAL ASSESSMENT <sub>2</sub>		SAMPLING		
Homogen Area No	Functional Space No	Mat. Type	Description	Friable	Material Quantity	Condition	Potent For Disturb	Sample ID	Sample Location Description	Analysis Results
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			
		TSI Surf. Misc.		Yes No NA		SD D G	SD D L			

1 Homogenous Areas and Functional Space defined by AHERA 2 Physical Assessment Descriptors are as defined by AHERA 3 Indicate type and percent of asbestos Condition Designations: SD = Significant Damage; D = Damaged; G = Good Potential for Disturbance Designations: SD = Significant Potential for Damage; D = Potential for Damage; L = Low Potential for Damage

## Form 2. Asbestos Bulk Sample

\*\*\*ATTACH LABORATORY ANALYTICAL SAMPLE RESULTS and Forward this form to the Park Asbestos Exposure Control Coordinator\*\*\*

COLLECTION DATA			
Sample No:	Inspector:		Sample Date:
Bldg No:	Floor:	Room:	Other:
Sample Details: (e.g., floor tile mastic near window, piping insulation along south wall, etc.)			
Estimated Quantity: (i.e., LF or SF similar material)		Condition: Friable <input type="checkbox"/> Yes <input type="checkbox"/> No Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>	

COLLECTION DATA			
Sample No:	Inspector:		Sample Date:
Bldg No:	Floor:	Room:	Other:
Sample Details: (e.g., floor tile mastic near window, piping insulation along south wall, etc.)			
Estimated Quantity: (i.e., LF or SF similar material)		Condition: Friable <input type="checkbox"/> Yes <input type="checkbox"/> No Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>	

COLLECTION DATA			
Sample No:	Inspector:		Sample Date:
Bldg No:	Floor:	Room:	Other:
Sample Details: (e.g., floor tile mastic near window, piping insulation along south wall, etc.)			
Estimated Quantity: (i.e., LF or SF similar material)		Condition: Friable <input type="checkbox"/> Yes <input type="checkbox"/> No Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input type="checkbox"/>	

### Form 3. Asbestos Surveillance

Step 1 – Use a current Asbestos Inventory to guide you through the survey.

Step 2 – Inspect all material listed in the Asbestos Inventory as ACM for labels. Label if missing.

Step 3 – If any ACM is friable, check column 1 and evaluate for potential for disturbance.

Step 4 – Evaluate for potential for disturbance based on the following Matrix and note in column 2:

	EXAMPLES OF POTENTIAL FOR CONTACT	EXAMPLES OF VIBRATION INFLUENCE	EXAMPLES OF POTENTIAL FOR AIR EROSION
High	Working near > once/week or public area, like a hallway, reception area, or dining area	Loud engines present or vibrations from aircraft easily sensed	High velocity air, like an elevator shaft or fan room
Moderate	Working near once/month to once/week or occupied room or office	Engines/motors present, but vibrations not very obvious or occasional loud sounds	Noticeable air movement, like an air shaft or ventilator air stream
Low	Working near < once/month or material is visible but not within reach of occupants	None of the above	None of the above

Step 5 – Describe any damaged ACM (e.g., punctured TSI, water damaged ceiling tiles, delaminating surfacing material, etc.).

Step 6 – Indicate any suspected sources/causes of the damaged asbestos (e.g., ladders propped on TSI, leaking roof, weathered/aged surfacing material).

Step 7 – Check column if ACM dust or debris is evident beneath/near the damaged material.

Step 8 – Indicate the room where friable or damaged material is located.





### Form 4. Asbestos Repair/Removal Tracking Form

\*\*\*Forward this form to the Park Asbestos Exposure Control Coordinator\*\*\*

TRACKING DATA		
<b>Activity:</b> <input type="checkbox"/> ACM/PACM Removal <input type="checkbox"/> ACM Repair <input type="checkbox"/> PACM Repair	<b>Type of Material:</b> <input type="checkbox"/> TSI <input type="checkbox"/> Surfacing Material <input type="checkbox"/> Miscellaneous Material	<b>Estimated Quantity (LF or SF):</b>
Description of material and location within the room:		
Building:	Floor:	Room:
Complete abatement of the material in this room <input type="checkbox"/> was <input type="checkbox"/> was not conducted.		
Company name and person conducting activity:		Date of activity:

TRACKING DATA		
<b>Activity:</b> <input type="checkbox"/> ACM/PACM Removal <input type="checkbox"/> ACM Repair <input type="checkbox"/> PACM Repair	<b>Type of Material:</b> <input type="checkbox"/> TSI <input type="checkbox"/> Surfacing Material <input type="checkbox"/> Miscellaneous Material	<b>Estimated Quantity (LF or SF):</b>
Description of material and location within the room:		
Building:	Floor:	Room:
Complete abatement of the material in this room <input type="checkbox"/> was <input type="checkbox"/> was not conducted.		
Company name and person conducting activity:		Date of activity:

TRACKING DATA		
<b>Activity:</b> <input type="checkbox"/> ACM/PACM Removal <input type="checkbox"/> ACM Repair <input type="checkbox"/> PACM Repair	<b>Type of Material:</b> <input type="checkbox"/> TSI <input type="checkbox"/> Surfacing Material <input type="checkbox"/> Miscellaneous Material	<b>Estimated Quantity (LF or SF):</b>
Description of material and location within the room:		
Building:	Floor:	Room:
Complete abatement of the material in this room <input type="checkbox"/> was <input type="checkbox"/> was not conducted.		
Company name and person conducting activity:		Date of activity:

## **Appendix B: Exposure Assessment**

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### ***Initial Exposure Assessment***

Prior to beginning asbestos work, an initial exposure assessment must be completed. The initial assessment is based on available monitoring results, observations and information about the materials, processes and potential for fiber release, which can indicate exposure representative of the work at hand. Initial exposure assessment may be made by a trained and experienced competent person.

All class I asbestos work will be presumed to create conditions that will exceed the PEL and excursion limit until personal exposure monitoring or a negative exposure assessment is made.

### ***Negative Exposure Assessment***

A negative exposure assessment is a demonstration that the employee will not be exposed to asbestos at or above the PEL or excursion limit. Data used to determine a negative exposure are:

1. Objective data demonstrating that the material cannot release fibers in excess of the PEL or excursion limit under the worst case working conditions that could be experienced during the job.
2. Prior monitoring data collected within the past 12 months for work conditions that closely resemble the process, type of material being disturbed, work practices and exposure control methods, environmental conditions and level of employee training.
3. Results of initial personal exposure monitoring of the current job.

### ***Initial Personal Exposure Monitoring***

In the absence of sufficient data to make a negative exposure assessment, initial personal exposure monitoring shall be conducted. Initial exposure monitoring of the current job will consist of: breathing zone air samples that are representative of 8-hour time weighted average; 30-minute, short-term exposures of each employee; those operations to be conducted over the course of the job. Exposure monitoring will be conducted following protocols described in 29 CFR 1926.1101 Appendix B, OSHA method ID-160, or NIOSH Method 7400.

### Periodic Monitoring

Once initial exposure monitoring has been conducted to characterize employee exposure, periodic follow-up monitoring is required to validate the exposure assessment and verify the continued effectiveness of engineering and work practice controls. Table B-1 summarizes periodic follow-up monitoring requirements.

**Table B-1. Periodic Follow-up Monitoring Requirements**

JOB DESCRIPTION	EMPLOYEES AFFECTED	FREQUENCY	TERMINATION OF MONITORING
Class I & II work, without use of supplied air respirators	Representative samples for all employees in the regulated area	Daily	When statistically reliable measurements indicate exposure < PEL & excursion limit
Class I & II work, using supplied air respirators	Representative samples for all employees in the regulated area	Not Required	
Class III & IV work	Representative of all employees expected to exceed the PEL or excursion limit	Intervals sufficient to document exposure	

### Additional Monitoring

Additional personal exposure monitoring must be initiated whenever there is a change in processes, exposure control equipment, personnel, work practices or other change that may result in new or additional exposures above the PEL or excursion limit.

## **Appendix C: Competent Person Responsibilities**

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A *Competent Person* is an individual designated by the park who has the qualifications (training) and authority to ensure worker safety and health during asbestos-construction activities. All asbestos work conducted in regulated areas must be supervised by a competent person.

### Responsibilities

On worksites where employees are engaged in Class I or II asbestos work, the designated competent person shall perform or supervise the following duties, as applicable:

1. Set up the regulated area, enclosure or other containment.
2. Ensure (by on-site inspection) the integrity of the enclosure or containment.
3. Set up procedures to control entry to and exit from the enclosure and/or area.
4. Supervise all employee exposure monitoring, ensuring that all required monitoring is conducted using appropriate protocols.
5. Ensure that employees working within an enclosure or using glove bags wear required respirators and protective clothing.
6. Ensure through on-site supervision, that employees set up, use and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements.
7. Ensure that employees use the hygiene facilities and observe the decontamination procedures specified.
8. Ensure through on-site inspection, that engineering controls are functioning properly and employees are using proper work practices.
9. Ensure that notification requirements are met.

### Inspections

The competent person will perform frequent and regular general safety and health inspections of job sites, materials and equipment. For Class I jobs, on-site inspections shall be made at least once during each work shift and at any time at employee request. For Class II, III and IV jobs, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employee request.

### Training

1. *Class I and II Asbestos Work.* For class I and II asbestos work, the competent person shall be trained in all aspects of asbestos removal and handling, including: abatement, installation, removal and handling; the contents of 29 CFR 1926.1101; the identification of asbestos; removal procedures, where appropriate; and other practices for reducing the hazard. Such training shall be obtained in a comprehensive course for supervisors that meet the criteria of EPA's Model Accredited Plan (40 CFR part 763, subpart E, Appendix C).
2. *Class III and Class IV.* For Class III and IV asbestos work, the competent person shall be trained in aspects of asbestos handling appropriate for the nature of the work, to include procedures for setting up glove bags and mini-enclosures, practices for reducing asbestos exposures, use of wet methods, the contents of this section (4.10), and the identification of asbestos. Such training shall include successful completion of a course that is consistent with EPA requirements for training of maintenance and custodial staff as set forth at 40 CFR 763.92(a)(2), or its equivalent.



## **Appendix D: Medical Surveillance**

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Parks must provide for medical surveillance for all employees engaged in Class I, II and III work who are exposed at or above the permissible exposure limit for a combined total of 30 or more days per year. Workers that conduct only Class II or Class III operations on intact material following required exposure control practices for one hour or less, including cleanup, are not included.

In addition, medical clearance is required for those employees required to wear a negative pressure respirator (refer to Section 4.3, Respiratory Protection).

Required medical examinations must be performed by or under the supervision of a licensed physician, and are provided at no cost to the employee at a reasonable time and place.

### Frequency

Medical surveillance will be provided according to the following schedule:

1. Prior to assignment to an area requiring the use of a negative-pressure respirator to protect against asbestos fiber exposure.
2. When the employee is assigned to an area where exposure to asbestos may be at or above the permissible exposure limit for 30 or more days per year, or when an employee is engaged in Class I, II or III work for a combined total of 30 or more days per year, a medical examination must be given within 10 working days following the 30 day of exposure. At least annually or more frequently if determined necessary by the physician.

### Examination Contents

The contents of medical surveillance examinations are given in 29 CFR 1926.1101 (m)(2)(ii). In support of the examination, the park must provide the physician the following information:

1. A copy of 29 CFR 1926.1101 and its appendices D, E and I.
2. A description of the employee's duties potentially exposing them to asbestos.
3. The employee's asbestos exposure level determined through personal exposure monitoring or anticipated exposure level.

4. A description of personal protective and respiratory equipment used.
5. Information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

Physician's Written Opinion

The physician will provide the park a written opinion containing the results of the medical examination and shall include:

1. The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an unacceptable increased risk of health impairment from exposure to asbestos.
2. Recommended limitations on the employee or on the use of personal protective equipment such as respirators.
3. A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
4. A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure.

The employee's written approval may be required under the requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) for the physician to be able to release a written opinion to the park. The park shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.