



**University of Massachusetts Amherst**

**Asbestos Containing Material  
Environmental Management System  
Manual**

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## **I. Introduction**

This manual documents the structure and function of the asbestos containing material (ACM) environmental management system (EMS), as prescribed by the Massachusetts Department of Environmental Protection (MA DEP), for the University of Massachusetts Amherst (UMass). The manual applies to all UMass departments, personnel, and work conducted on campus grounds.

The ACM EMS at UMass is the result of an administrative consent order (ACOP-WE-06-C001-27A-SEP-EMS) that was received and signed off on October 27, 2006. The consent order required that UMass design and implement an EMS for the appropriate management of known and suspected ACM on campus. Furthermore the consent order required that the ACM EMS reflect the size, complexity and environmental conditions and circumstances of UMass operations that will or may impact or encounter ACM.

The MA DEP compliance based EMS consists of 12 elements. These elements, once implemented, provide a “plan, do, check, act” framework for managing ACM. This manual provides a comprehensive overview of the UMass ACM EMS and is a description of the EMS’s core elements. Lastly, it is intended to serve as the principle source of guidance for the UMass ACM EMS and is one of the tools used to achieve the goal of continual improvement.

## **II. Scope**

The requirements of this manual apply to new construction, repair, renovations, demolition, alterations, and/or maintenance of any building, structure, or utility on the UMass campus. This manual outlines roles and responsibilities to ensure proper measures are taken to minimize the potential of a release or exposure to ACM. While ACM is the hazardous material typically most encountered during construction and maintenance activities there are other materials that may be encountered, including but not limited to, lead, mercury, PCBs, and possibly mold. An environmental site assessment (ESA) typically undertaken to determine if

ACM or other hazardous materials are present within the scope of work. If other potentially hazardous materials are identified, in addition to ACM, the abatement portion of the project will also address the proper management of these materials. Where the presence of ACM is unknown for small jobs or maintenance activities the work can be conducted in a manner as if ACM is present thereby eliminating the need to conduct an assessment.

The majority of the construction and maintenance activities on the UMass campus fall into one of two categories. The first is known as *Small Maintenance and Inside Design Projects* and the second is *Outside Design Projects*. Which category the project or work falls into will affect the work flow process and determine whether the hazard assessment, abatement, and oversight are conducted by UMass personnel or a contractor. Typically, the funding source or project size and complexity determines the category.

UMass maintains overall and primary responsibility and authority associated with any asbestos activity on campus property. Regardless of the funding source, unless otherwise determined by legal ruling, UMass is considered the “Owner/Operator” as defined in the Code of Massachusetts Regulations. EH&S serves as the agent of the UMass for all projects involving asbestos management.

### **III. Asbestos Management Policy**

UMass utilizes an Environmental Management System (EMS) framework for ACM maintenance and abatement on campus to ensure compliance with applicable regulations and requirements in a manner that is both cost effective and efficient. The EMS framework also provides a methodology to systematically enhance performance and identify opportunities for improvement.

It is the policy of UMass Amherst to comply with the regulations of the Commonwealth of Massachusetts (Massachusetts Department of Labor and Workforce Development and the Massachusetts Department of Environmental Protection), the Federal Occupational Safety and

Health Administration (OSHA), and the Environmental Protection Agency (EPA) that pertain to ACM in the work place and environment.

All contracted and in-house ACM abatement work will be conducted by appropriately licensed personnel. All work activities involving the management of ACM at the University must adhere to the guidelines set forth in the UMass Amherst ACM Management Program and all applicable rules and regulations.

The purpose of the program is to:

- Protect employees, students, contractors, and visitors from the potential health hazards of ACM exposure on campus.
- Prevent illness, injuries, and death from accidents during ACM abatement activities on campus.
- Allow for appropriate construction, repair, renovation, alteration, and demolition project planning.
- Ensure regulatory compliance with the many ACM regulations, and many agencies, on the state and federal level.
- Ensure that appropriately trained, qualified, and licensed individuals administer the ACM Management Program at UMass.
- Protect the property and facilities at UMass.

## **IV. Federal and State Regulations**

Federal, state, and local government regulations govern removal of ACM within the Commonwealth of Massachusetts. The Federal Environmental Protection Agency (EPA) regulates the emission standard for asbestos (40 CFR Part 61, Subpart M) and addresses the requirements for the manufacturing, application, removal, and disposal of ACM. The sections of the EPA regulations that pertain to the University are those which govern removal from renovation or demolition areas and the disposal of ACM. OSHA Standard 29 CFR 1910.1001 and 1926.1101 address asbestos from the occupational health standpoint, by specifying

limitations of workers' exposure through engineering controls, protective equipment, monitoring and training. The OSHA standard also provides requirements for the specifications and posting of caution signs and labels and respiratory protection guidelines.

The Massachusetts Division of Occupational Safety (DOS) regulation 453 CMR 6.00, the Removal, Containment or Encapsulation of ACM, regulates licensing, training and work practices for ACM contractors and other entities engaged in ACM related work.

Massachusetts Department of Environmental Protection (DEP) 310 CMR 7.09 regulates the transportation and disposal of ACM waste. OSHA and DOS regulations both apply to contractors hired by UMass while only DOS regulations apply to UMass personnel.

Environmental Health & Safety (EHS) is the overall responsible agency representing UMass for evaluating and interpreting federal and state ACM regulations and communicating this information to affected personnel and departments. EHS utilizes a number of sources to keep abreast of changes in regulations. EHS will communicate this information, modify the EMS as necessary, and ensure that the changes are properly applied to operations.

## **V. Roles and Responsibilities**

The ACM Management program impacts the entire campus; however some departments have a larger role than others. The success of the program requires inter-departmental cooperation and strong communication. Success of the program also requires that departments and staff follow through on the assigned roles and responsibilities as defined below.

### **A). Environmental Health & Safety**

The EHS Department operates a comprehensive environmental health and safety program at UMass. Multidisciplinary units within EHS monitor compliance with federal, state, and local regulations governing environmental, work safety, and health issues, and also assist other university departments in meeting regulatory standards. While the Director of EHS has assigned the Industrial Hygiene Program to oversee the ACM Management Program, the Environmental Management Services and Campus Safety Programs both support and contribute to the program's success. The Vice Chancellor of Administration and Finance has

designated EHS as the UMass agency with ultimate responsibility and authority for management of asbestos. Specific responsibilities of the department are as follows:

- Responsible agency for asbestos management, asbestos waste management, and related regulatory compliance.
- Administer the ACM Management Program.
- Coordinate and/or conduct environmental site assessments (ESA).
- Provide or coordinate oversight of abatement jobs.
- Submit appropriate notifications to MA DEP.
- Provide ACM EMS/Compliance Awareness Training, refresher training, and initiation training for new management and employees whose job responsibilities may impact ACM.
- Conduct annual audits of ACM management program.
- Conduct quarterly inspections of construction and abatement activities and routine maintenance jobs.
- Sign all ACM waste manifests for ACM waste generated on campus grounds.
- Maintain copies of all records and documents required by applicable state and federal regulations.
- Review, revise, and approve University ACM contract specifications in conjunction with the Physical Plant Environmental Services Shop and Facilities and Campus Planning, as necessary.
- Provide technical review and approval of abatement designs and specifications for ACM abatement projects.
- Serve as the University liaison for state agencies regarding ACM issues and inspections.
- Maintain and update ACM program documentation.
- Investigate and respond to ACM concerns of employees, contractors, and building occupants.
- Investigate reports of damaged ACM and occurrences of unintended ACM disturbances.
- Manage the medical surveillance program including respiratory training and fit testing.

- Coordinate overall EMS activities (e.g., annual review, EMS audit, Core Team meetings, Corrective Action).
- Contact MA DEP to self report.
- Keep current with ACM regulations and notify affected UMass personnel.
- Clear abatement work conducted by ESU and communicate to appropriate parties.

**A 1). Outside Monitoring Consultant (on an as needed basis)**

- Under the direct supervision of the assigned manager of EHS, the consultant will provide the following:
  - Pre Inspections (including initial scope review);
  - Bulk Samples (ACM Reviews);
  - Post inspections (visual inspection and limited clearance air monitoring);
  - Air Monitoring (Assessment air monitoring and limited area monitoring);
  - On going monitoring of ACM abatement;
  - Revised plans for renovation/demolition, if necessary; and,
  - Copies of all documentation required for the execution of contractual duties to EHS.

**B). Physical Plant**

The Physical Plant is responsible for the custodial, grounds, utilities, and building maintenance for nearly 10 million square feet of administrative, academic, and recreational space at the UMass campus. The Environmental Services Unit (ESU) of the Building Maintenance Department oversees the day-to-day operations of the ACM Management program. It is mainly responsible for maintenance and small abatement jobs. The ESU will contract out jobs that are beyond its scope and means, but will retain responsibility to assure that said contractors conduct services in a fully compliant manner.

**B 1). Environmental Services Unit (ESU)**

- Manage the day-to-day operations of the ACM program for the campus, in coordination with the EHS ACM Program Administrator.



- Maintain adequate workspace, shower facilities, laundry, safe work facilities, equipment, waste disposal dumpsters, and other necessary facilities at their shop at the Physical Plant.
- Receive medical clearance and complete annual exams, annual training, and annual re-licensing.
- Participate in the Respiratory Protection Program.
- Manage outside ACM contractors and consultants in accordance with Physical Plant ACM Specifications.
- Maintain an Operations and Maintenance Plan.
- Provide routine maintenance, clean up, and repair of ACM and removal for other campus maintenance shops.
- Participate in planning meetings with project managers and other stakeholders prior to preparing abatement estimate.
- Conduct routine surveillance of ACM around campus and inspect mechanical rooms.
- Coordinate the ACM program with all other Federal, state, and local requirements; such as, lead paint, confined space, lock out/tag out, respiratory protection, fall protection, scaffolding, and other programs as needed.
- Participate in annual ACM/EMS Compliance training.

**B 2). Outside ACM Abatement Contractor (contracted by ESU)**

- Review initial scope with the Environmental Services Shop (ESU).
- Coordinate the submission of the ACM Notification to state with EHS(must be 10 working days).
- Schedule communication with ESU.
- Communicate site clearance with EHS and ESU.

**B 3). Physical Plant Work Management**

- Maintain a database, with input from ESU, EHS, and FCP, that tracks ACM locations on campus.
- Facilitate campus-wide departmental access to database.

### **C). Facilities and Campus Planning**

Facilities & Campus Planning (FCP) is an authorized agent of the state's Division of Capital Asset Management (DCAM). FCP is responsible for all capital projects, plant adaptation, and other non-maintenance construction on state property within the UMass campus. The majority of funding for new construction and major renovations comes from either DCAM or the University of Massachusetts Building Authority (UMBA). FCP typically assigns a project manager to oversee capital projects funded and executed by either DCAM or UMBA\*.

- Submit work requests through the Physical Plant EMPAC work order system for all jobs and projects undertaken or coordinated by FCP.
- Notify EHS of any meetings with designers or contractors concerning any projects that could potentially involve ACM abatement projects.
- Involve EHS with all questions or concerns about abatement projects.
- Notify EHS of reportable incidents at ACM abatement job sites.
- Ensure EHS receives copies of daily air sampling results and clearance data at abatement projects.
- Notify EHS of the disturbance of ACM by unauthorized personnel.
- Coordinate with EHS the review and approval of any draft ACM abatement designs.
- Coordinate with EHS the review and approval of any draft ESA and Industrial Hygiene (IH) plans and proposals.
- Ensure contractors forward copies to EHS of laboratory reports for all ACM bulk samples taken by contractors.
- Ensure contractors provide EHS copies of daily air sampling results at abatement projects and the laboratory reports of any bulk samples collected by contractors.
- Participate in annual ACM EMS/Compliance training.
- Assure that EHS approves of any contract language dealing with assessment, abatement, disposal, and monitoring activities associated with ACM or other hazardous materials.
- Assure that contract language identifies EHS as the UMass representative for any matters dealing with proper management of asbestos.

- Assure that the IH contractor is independent of the abatement contractor.

\*UMBA and DCAM are independent state entities whose main function is to construct facilities for use on University of Massachusetts' campuses and other state agencies, respectively. New construction and/or major renovation funded by UMBA and DCAM are done utilizing their respective design specifications, guidelines, and firms. FCP assigns a project manager to each project to ensure UMass design guidelines are incorporated into the project in addition to facilitating the construction process on the UMass campus. Occasionally UMBA or DCAM will delegate authority to UMass who is then responsible for all elements of the design and construction process. Regardless, FCP will coordinate with EHS personnel to ensure EHS requirements dealing with the assessment, abatement, disposal, and monitoring activities associated with ACM or other hazardous materials are incorporated into the design guidelines of the project.

**D). Other UMass Departments (Including, but not limited to, Housing, Auxiliary Services, Telecommunications, Athletics, and Academic Departments)**

There are a number of departments on the UMass campus that provide specialized services that are critical components of the campus' day-to-day operations. These departments typically maintain a number of trades personnel who are responsible for routine maintenance within their respective departments. It is imperative that their ability to conduct work is not retarded by the ACM assessment and abatement process. However, it is necessary that these departments abide by their roles and responsibilities, as they relate to the ACM program, to minimize the potential of an accidental exposure to this hazard.

- Submit work requests through the Physical Plant EMPAC work order system for all jobs and projects that can potentially disturb ACM (this includes work conducted by fee based contractors).
- Utilize EHS, or a firm retained by EHS, to conduct an environmental site assessment prior to initiating any work that can disturb ACM.
- Utilize ESU or an environmental firm with properly trained personnel for abatement work.
- Utilize EHS, or an Industrial Hygienist retained by EHS, to provide oversight of the abatement work (includes clearance).
- Notify EHS of the disturbance of ACM by unauthorized personnel.

- Participate in the annual ACM EMS/Compliance training (designated personnel only).
- Contact ESU upon discovery of ACM.
- Follow UMass ACM policies and procedure.

## **VI. Training**

There are various levels of training required depending on the type of involvement with ACM containing materials.

### **A 1). ACM EMS/Compliance Training**

Managers and personnel whose work can disturb ACM are required to complete the ACM Compliance Training provided by EHS on an annual basis. Each Departmental Director (i.e., EHS, PP, FCP, Housing, Auxiliary Services, Telecommunications) is responsible for ensuring the appropriate personnel within their department complete this training. New personnel whose work can disturb ACM are required to take this training as part of their orientation.

### **A 2). ACM Awareness Training**

ACM Awareness Training must be completed by all employees that are potentially occupationally exposed to ACM, and employees who perform housekeeping operations in areas that contain ACM Containing Material (ACM) or Presumed ACM Containing Material (PACM).

### **A 3). Certification**

Managers who oversee UMass personnel who work directly with ACM will ensure that they are appropriately trained and licensed by the Commonwealth of Massachusetts in their respective areas of ACM responsibility. All outside contractors shall carry copies of certifications and licenses on the job site. All ESU Shop personnel are appropriately trained, equipped, and licensed by the Commonwealth of Massachusetts in their respective areas of ACM responsibility. Documentation of training activities, certification, and licenses for UMass personnel must be provided to the EHS office for retention.

In addition to these trainings EHS posts a range of ACM information on the UMass EHS website. Campus personnel, faculty, students, and interested parties can access this site to learn more about ACM in general, UMass ACM policies and procedure, and who to contact with questions. EHS will also periodically communicate ACM programmatic information to the participants of the various committees that are facilitated by EHS (e.g., Lab Safety Coordinators and Institutional Chemical Safety Committee).

## **VII. Campus Construction and Maintenance and Asbestos Containing Material**

An ACM project, for the purpose of this program, is defined as any activity that may result in the disturbance of ACM. This could involve projects whose main focus is not ACM, but which are undertaken in an area where ACM is present and may be disturbed. University Project Managers, Maintenance Supervisors, Custodial Supervisors and any other employee(s) involved in work which may disturb ACM must follow campus processes and procedures.

The actual day-to-day management of the University's ACM and other hazards involves mainly three departments. The first is EHS, which is responsible for coordinating the ESA, abatement oversight, and job clearance. The second is the Physical Plant ESU, which is mainly responsible for maintenance and small abatement jobs and coordinating larger abatement projects funded with internal money. The third is FCP which is responsible for all capital projects, plant adaptation, and other non-maintenance construction on state property within the UMass campus. Communication and coordination among all three departments is required to effectively execute the ACM Management Program. The overall responsibility for the ACM program rests with EHS

### **A). Initiating Work**

All work, which could potentially disturb ACM, conducted on the UMass Amherst campus, whether it is drilling a hole or renovating a building, must begin with the submittal of a work request through the Physical Plant work management system. Work requests can be submitted

by calling 545-0600 or online at <http://facil6.facil.umass.edu/custinfo/request.html>. All work requests are reviewed to determine if a hazard assessment is required prior to work being approved and initiated. The scope and complexity of the work request and the associated funding source will determine whether the request follows the work flow process of Small Maintenance and Inside Design Projects or Outside Design Projects.

## **B). Small Maintenance and Inside Design Projects**

The majority of jobs that involve small maintenance (e.g., work involving less than three linear feet or three square feet) can be conducted in a manner as if the site does contain ACM so long as appropriate precautions and practices are used. The majority of ACM maintenance and abatement projects at UMass Amherst are conducted by or through the Environmental Services Unit. This operation consists of personnel who are MA Labor and Industry certified for their respective occupation. They are responsible for conducting small-scale short duration Operations and Maintenance activities. These include limited removal of pipe insulation using the glove bag technique, and damaged ACM debris clean-ups and insulation repairs. Due to their limited equipment inventory and crew size, large-scale projects are typically conducted by outside contractors, retained by ESU, under full containment conditions only.

### **B 1). Environmental Site Assessment**

Larger projects which exceed the limits of small maintenance will involve the services of an outside environmental firm to conduct the environmental site assessment. EHS will hire the consultant and coordinate the hazard assessments. EHS will disseminate the results to the appropriate project manager(s) and Physical Plant so that the abatement portion of the job can be estimated.

### **B 2). ACM Abatement Contractors**

When ESU determines that a project is beyond the scope of its activities, an environmental contractor is hired to conduct the abatement work. ESU has developed a performance specification for any ACM or hazard abatement activity conducted by a contractor hired by ESU. This document defines specific activities that are to be conducted during an ACM or

hazard abatement project. Requirements are specified for the abatement contractor who is expected to comply with all statutory requirements in effect at the location and time of the project.

Abatement work cannot commence unless all appropriate forms and/ or transmittals have been submitted to MA DEP. EHS will submit the ACM Removal Notification Form ANF-001 for all work undertaken by UMass personnel. EHS must receive a copy of ANF-001 when the work is undertaken by outside contractors. EHS must also receive an executed copy of the MA DEP Construction/Demolition Notification (BWP AQ 06) form before the project can be initiated.

If a job requires a Conditional Approval from MA DEP, for the demolition of a structure that contains ACM, the contractor shall coordinate the effort with EHS to ensure that the proper approval signatures are obtained and that the paperwork is submitted in a timely fashion. Work cannot begin unless EHS has an executed copy of the Conditional Approval. The contractor is also responsible for notifying EHS that the MA DEP form BWP AQ 06- *Notification Prior to Construction or Demolition* must be submitted. EHS must receive an executed copy of this form before the project can be initiated. EHS will retain a copy in the project folder.

ACM waste shall be disposed of in accordance with the guidelines established in **EHS-HWGMG-SOG.01 ACM Containing Material Waste Management Guidelines**.

### **B 3). Monitoring and Oversight**

EHS or an independent (third party) environmental monitoring firm, hired by EHS, is utilized for each abatement project conducted by ESU or its contractor. Typically, EHS will provide oversight and monitoring for work conducted by ESU and will hire the monitoring firm to oversee the larger abatement jobs that have been contracted out. For these jobs the monitoring firm will provide personnel to monitor contract and/or specification compliance, regulatory

compliance, conduct visual inspections of the work areas and collect and analyze air samples before, during and after the project. All records are retained by EHS.

Associated Document: **EHS-INDH-SOP.01 Small Maintenance and Inside Design Projects**

### **C). Outside Design Projects**

A large portion of work undertaken on the UMass Amherst campus is funded by the University of Massachusetts Building Authority and the Division of Capital and Asset Management. This work is typically done with outside contractors and overseen by either the Design and Construction or Campus Project Offices within FCP. Each job requires coordination with EHS to establish the parameters for the environmental site assessment, abatement, and Industrial Hygienist (IH) oversight. This is done on a case-by-case basis.

#### **C 1). Environmental Site Assessment**

Prior to starting design of a project with an outside design firm, FCP personnel will work with EHS to identify the scope and requirements of the ESA. The project design firm that is awarded the project will hire an environmental company to conduct the assessment using standard industry protocols and will incorporate any requirements specified by UMass ACM policies and procedures and/or EHS. EHS has the ability to provide oversight of the site assessment and the testing of materials. Copies of the ESA report shall be submitted to EHS for review and retention. If hazardous materials are found at the project site the environmental firm will work with FCP and EHS to develop abatement specifications and requirements that would be incorporated into the contract documents developed by the prime design consultant.

#### **C 2). ACM Abatement Contractors**

The company that is hired to undertake the abatement portion of the project must follow the performance specifications for any ACM or hazard abatement activity. The specifications are developed based on the design protocols provided by FCP and EHS. They define specific activities that are to be conducted during an ACM or hazard abatement project. Requirements



are specified for the abatement contractor who is expected to comply with all statutory requirements in effect at the location and time of the project.

Abatement work cannot commence unless all appropriate forms and/ or transmittals have been submitted to MA DEP. EHS must receive a copy of ANF-001 when the work is undertaken by outside contractors. EHS must also receive an executed copy of the MA DEP Construction/Demolition Notification (BWP AQ 06) form before the project can be initiated.

If a job requires a Conditional Approval from MA DEP, for the demolition of a structure that contains ACM, the contractor shall coordinate the effort with EHS to ensure that the proper approval signatures are obtained and that the paperwork is submitted in a timely fashion. Work cannot begin unless EHS has an executed copy of the Conditional Approval. The contractor is also responsible for notifying EHS that the MA DEP Form BWP AQ 06- *Notification Prior to Construction or Demolition* must be submitted. EHS must receive an executed copy of this form before the project can be initiated. EHS will retain a copy in the project folder.

ACM waste shall be disposed of in accordance with the guidelines established in **EHS-HWMSG-SOG.01 ACM Containing Material Waste Management Guidelines**.

### **C 3). Oversight**

The prime design consultant hires an independent IH that provides oversight of the abatement work. The FCP project manager coordinates with EHS and the independent IH to review the work plans or protocols submitted by the abatement contractor. FCP informs EHS of the work schedule so that EHS can provide oversight as required to verify that work is completed in accordance to standard protocols and procedures. All documentation is provided to FCP at the conclusion of the project and forwarded to EHS for retention.

#### **D). Tracking Work**

The Physical Plant EMPAC work management system is used to track the flow of work to ensure that all steps with the environmental site assessment, MA DEP notification, abatement, tracking, and clearance are completed. EMPAC is also used to track locations of ACM on campus. The results of ESAs are entered into the EMPAC database for reference against future construction or maintenance activities. When a site is abated the information is updated in EMPAC to keep the location and data current.

### **VIII. Maintenance of ACM Containing Materials**

#### **A 1). Prohibited Practices**

The following work practices shall not be used for any work that disturbs ACM containing materials, regardless of measured levels of ACM exposure or the results of initial exposure assessments:

- High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air;
- Compressed air used to remove ACM, or materials containing ACM;
- Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM; and,
- Employee rotation as a means of reducing employee exposure to ACM.

#### **A 2). Routine Maintenance and Cleaning**

It is important to minimize the disturbance of ACM-containing materials and the subsequent release of ACM fibers. This can be accomplished by staying out of physical contact with materials that contain, or are presumed to contain, ACM.

Dust and debris in an area containing visibly deteriorated ACM shall not be dusted or swept dry, or vacuumed without using a HEPA vacuum filter. This cleaning shall only be carried out by certified ACM workers.

### **A 3). ACM-Containing Flooring Material**

All vinyl and asphalt flooring material shall be maintained according to this paragraph unless it has been demonstrated the flooring does not contain ACM. Sanding of flooring material is prohibited. Stripping of finishes shall be conducted using low abrasion pads at a speed lower than 300 rpm and employing wet methods. Burnishing or dry buffing may be performed only on flooring that has sufficient finish so that the pad cannot contact the flooring material, and the tiles and adhesives remain intact throughout the process.

See *EHS-INDH-SOG.01 Maintenance of Floors with Asbestos-Containing Vinyl Tiles* for specific information.

## **IX. Asbestos Containing Material Emergencies**

In the event an emergency situation mandates that work be performed that involves ACM, the following special procedure will apply:

- All worked must be halted, the area secured, and potentially exposed individuals removed from the area until permission to return is given by EHS or designee - if the emergency involves a broken pipe, steam line, or refrigeration lines a reasonable effort should be made to secure the emergency (i.e, shut off broken line).
- During regular working hours, the employee or outside contractor will notify the Project Manager and the PP Service Desk who in turn will contact EHS.
- Any unexpected or uncontrolled release of ACM must be immediately reported to the PP Service Desk who in turn will contact ESU and EHS. Based on the nature of the emergency, the EHS will then go to the scene to conduct an assessment.
- When permission to proceed is granted, job parameters will be set and monitored by the EHS. Emergency notification to MA DEP will be made through EHS, when appropriate and as soon as practical.

## **X. Inspections and EMS Audits**

### **A). Inspections**

Inspections are conducted on a periodic basis to ensure that the regulatory requirements associated with ACM management are being followed. The inspections are documented and retained as records. EHS will conduct unscheduled and unannounced inspections on a quarterly basis. The inspections may cover one or more of the following activities: abatement jobs, new construction, renovations/alterations, and routine maintenance.

The assessments are carried out utilizing a team approach with a protocol that has been developed by EHS (*See EHS-INDH-FRM.01 ACM Inspection Form*). The protocol is reviewed (on an annual basis) and revised (as necessary) by EHS. ACM abatement job sites are inspected by observing operating conditions, interviewing personnel, and reviewing any required documents or records. Should any noncompliances be identified, EHS will determine if the noncompliance can be immediately corrected on site or if the abatement portion of the work should be shut down. The EHS Inspector shall review the objective evidence with the on-site project manager and follow up with communication to the appropriate departmental director. All findings and corrective action(s) taken on site will be recorded and stored on file at EHS. Noncompliance findings that require follow-up shall follow the Corrective Action process listed below (Also see Section XIII. Self Reporting).

### **B). EMS Audits**

The main purpose of an EMS audit is to identify opportunities for improvement and evaluate conformance to an EMS audit protocol which reflects the requirements of the MA DEP Consent Order. The audit evaluates procedures, programs and records and verifies whether or not individuals and or departments fulfill their roles and responsibilities.

Audits are conducted on an annual basis and will be initiated and led by EHS personnel. Other departments can assign personnel to participate in the audit under EHS direction, although this is not mandatory. Personnel that participate in the audit will be assigned to audit teams of two, one as the lead and the other as support. To avoid a possible conflict of interest, auditors shall

not lead the audit of their own department. The Audit Team develops an audit plan that identifies what elements of the EMS will be reviewed, the area of operation to be audited, the schedule, and the audit team. The results of previous audits are considered when developing audit plans. The final plan is disseminated to management in advance of the scheduled date.

Relevant documentation and records are reviewed prior to the field component of the audit. Upon completion of the documentation review the audit team will then conduct the field portion of the audit to interview staff, observe activities and operations. Responses and objective evidence shall be recorded.

The Audit Team will look for evidence to verify information from interviews with personnel and reconvene to review evidence and identify and/or confirm findings. An internal audit report will be drafted for the close-out meeting. The Lead Auditor will conduct the close-out meeting, announce audit findings, provide clarification of conflicting or confusing information, identify positive practices, review objective evidence to support the findings and summarize the audit results.

A final report is compiled by the Lead Auditor after the audit has been completed. Copies of the final report will be sent to the directors of Physical Plant, EHS, FCP, and other departmental directors (as necessary) for review. The Lead Auditor will prepare Corrective Action Notices for the audit findings in accordance with the Corrective Action process. The EMS Coordinator will include the audit report as part of the Management Review meeting, and the audit report will be retained on file.

## **XI. Nonconformance, Noncompliance, and Corrective Action**

The corrective action process is critical to the evolution and long-term success of the ACM EMS. It is a tool that ensures weaknesses within the system are documented and corrected in a timely fashion. The following establishes the process for identifying, documenting, analyzing and implementing corrective (and preventative) actions associated with EMS audits and site inspections.

### **A 1). Noncompliance Corrective Action**

Site inspections are conducted on a quarterly basis and can result in one or more findings that are deemed noncompliant. Subsequent action requires that the job site return to compliance as quickly as possible. Findings from inspections will most likely be corrected on site otherwise the abatement portion of the work site can be shut down. If possible, the project manager will identify what steps are taken to correct the finding and implement them while the inspector is on-site. The inspector shall record this information. If the corrective action cannot be initiated while the inspector is onsite the inspector shall leave the Corrective Action Notice (CAN) and request that it be completed and returned no later than 48 hours with a description, and timeframe, of how the work site will return to compliance. All corrective action notices associated with noncompliance shall be entered into a database maintained by EHS (Also see Section XIII. Self Reporting).

### **A 2). Nonconformance Corrective Action**

Findings from an EMS audit are classified as a nonconformance. When this occurs it is the responsibility of the UMass EMS Manager to initiate any CANs. The EMS Manager will assign and issue the CAN to the appropriate manager. The assignee will have up to three weeks to respond with the following information: a) cause of nonconformance; b) action to correct; and, c) anticipated date of completion. If the response is not received within the specified time period, the CAN is submitted to the employee's Director who shall take action to ensure a response is submitted in a timely fashion. The EMS manager shall review the information for appropriateness, along with the EH&S staff for technical review.

Once the EMS Manager receives, reviews, and approves the response the EMS Manager shall notify the assignee that corrective action can be initiated. Corrective action will be verified by the auditor or EMS Manager. In the case that the corrective action has not been completed within the specified time-frame, the employee's Director shall be notified who in turn shall take appropriate action to ensure the corrective action is completed. Once verified the EMS Manager will close out the completed corrective action in the CAN database.

Any corrective action taken to eliminate the cause of actual or potential nonconformance shall be appropriate to the magnitude of problems and commensurate with the issue or environmental impact encountered.

## **XII. Complaint Response**

Occasionally staff, faculty, students, and contractors may raise concerns about their potential for exposure to ACM. In the event that EHS receives a complaint it will inspect the area in question and evaluate potential exposure. This evaluation may require collecting a bulk sample to determine if material involved is in fact ACM. Air monitoring is performed if there is any disturbance of ACM that could result in personal exposure to airborne ACM. Examples of complaints include ceiling material falling onto an employee's desk, questions about containment during an ACM removal project, damaged ACM debris on the floor, employees encountering potential ACM during the performance of their duties and have questions about their potential exposures. EHS will provide the complainant and their department head a brief written report on the results of the evaluation. If necessary, EHS will initiate appropriate action, commensurate with the findings of the evaluation, to mitigate the problem. EHS will retain a file of this information.

## **XIII. Self-Reporting**

Scheduled and unscheduled inspections and/or audits may reveal incidents that constitute a noncompliance with ACM regulations. When these issues are identified EHS will review them to determine whether or not the issue in question is in fact noncompliant. Should the incident be deemed noncompliant EHS will first contact the Director of the department responsible for the noncompliance. EHS will then contact the Western Massachusetts Department of Environmental Protection by phone within 24 hours, once the determination has been made, and follow up with an email within three business days. EHS will maintain a file of incidents reported to MA DEP.

## **XIV. Recordkeeping**

Records must be kept for all activities of inspections, abatement and sampling. EHS maintains the following:

- Training records;
- Medical surveillance;
- Inspection reports;
- Buildings surveyed for ACM;
- Air monitoring data;
- ACM waste manifests;
- Pump calibration records; and,
- Respirator fit testing and medical clearance for each person using a respirator for ACM related work.

## **XV. Annual Review**

The purpose of the annual review is to ensure management has the opportunity to review the functionality of the ACM EMS and assess its overall effectiveness. The review process is intended to provide a forum for discussion and improvement of the EMS and to provide management with a vehicle for making any changes to the EMS necessary to achieve established goals and/or the commitments within the policy statement. The annual review shall include, at a minimum, the directors of Physical Plant, Facilities & Campus Planning, and Environmental Health & Safety. This process, which must be documented, will ensure that the necessary information is collected and presented to senior management, to allow them to make this evaluation

At a minimum, the information to be reviewed must include:

- A summary review of ACM management performance metrics.
- The results of any internal or external inspections and audits.



- A summary of corrective actions (and trend analysis).
- Changing operational or regulatory conditions.
- Future needs or other external factors that may affect the necessary structure and content of the EMS.

Upon review of the information, management makes a determination on the continuing effectiveness of the EMS and on its ability to achieve established continuous improvement goals. They also shall consider whether the system continues to be adequate, effective, and suitable for its intended purpose.

# **APPENDIX A**

## **Associated Documentation**

EHS-INDH-SOP.01 Small Maintenance and Inside Design Projects

EHS-INDH-SOP.02 Outside Design Projects

EHS-INDH-SOG.01 Maintenance of Floors with Asbestos-Containing Vinyl Tiles

EHS-HWVG-SOG.01 Asbestos Containing Material Waste Management

EHS-INDH-FRM.01 Asbestos Containing Material Inspection Form

PP.12.B.005.B Hazardous Materials Review and Removal

MA DEP MOA Paint and Window Glaze Removal (Approved 06/02/06)

Physical Plant Asbestos Abatement Specifications

## **APPENDIX B**

### **Glossary of Terms**

**Abatement** - ACM abatement is the process through which ACM containing building materials are evaluated for integrity to determine whether they should be removed or steps should be taken to minimize the health risks associated with ACM. ACM abatement should only be conducted by a specialist, because the proper precautions must be employed in order to avoid compounding ACM health risks.

**ACM** – (Asbestos Containing Material), any material containing more than 1% asbestos (by weight).

**Asbestos** - any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cummingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite

**Clearance** - “Asbestos clearance air monitor” means a person who performs air monitoring to confirm clearance levels to establish that an area is safe for reoccupancy after an ACM abatement project. Small jobs, such as drilling a hole in a wall, may only require a visual assessment. EHS, or its designee, is responsible for clearing an ACM job.

**Division of Capital and Asset Management (DCAM)** – DCAM is an agency within the state of Massachusetts that provides professional and comprehensive services to state agencies in the fields of public-building design, construction, maintenance and real estate.

**EMS Audit** – a periodic process to assess the ACM EMS against the requirements of the compliance based EMS prescribed by the MA DEP Consent Order.

**Environmental Management System** – An Environmental Management System (EMS) is a management tool that provides a framework for how ACM is managed on the UMass campus.

The elements that make-up the framework are based on those prescribed by the MA DEP Consent Order.

**Environmental Services Unit (ESU)** – the Environmental Services Units operates under the Building Maintenance Program of the Physical Plant Department. It is responsible for conducting small abatement jobs on campus and coordinates larger abatement jobs funded with campus money. It is also responsible for maintaining the campus’ ACM Operations and Maintenance plan.

**Environmental Site Assessment** – a systematic process to determine whether a particular structure, room, or facility is or may be subject to actual or potential contamination.

**Industrial hygienist** - means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards

**Massachusetts Department of Environmental Protection (MA DEP)** - The Department of Environmental Protection is the state agency responsible for ensuring clean air and water, the safe management of toxics and hazards, the recycling of solid and hazardous wastes, the timely cleanup of hazardous waste sites and spills, and the preservation of wetlands and coastal resources.

**Massachusetts Division of Occupational Safety (DOS)** – The Division of Occupational Safety's ACM Program is responsible for the regulation of occupational ACM exposure in the commonwealth.

**University of Massachusetts Building Authority (UMBA)** - The UMass Building Authority is a distinct, public organization established by the Massachusetts Legislature in 1960. Its [mission](#) is to build facilities on the University of Massachusetts campuses that could be financed from student fees and charges. Facilities include student dormitories, dining facilities and parking garages, academic buildings, laboratories, athletic facilities, heating plants, and other facilities, as well as providing funding for the repair and renovation of existing campus facilities.