ORDER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

1050.20A

10/12/01

SUBJECT: AIRWAY FACILITIES ASBESTOS CONTROL PROGRAM

1. **PURPOSE.** This order establishes the Airway Facilities (AF) Asbestos Control Program (ACP) and delineates responsibilities, procedures and standards for the management of asbestos containing materials (ACM)/presumed asbestos containing materials (PACM). The AF ACP consists of an aggressive program to inspect facilities to identify and assess ACM/PACM, to provide necessary training to employees working around ACM/PACM and to ensure proper management of ACM/PACM.

2. DISTRIBUTION. This order is distributed to the division level within Airway Facilities and the Office of Environment and Energy in Washington; to the Environmental, Safety and Emergency Management Division in the Office of Facility Management at the Aeronautical Center; to the Environmental Branch of the Facility Services and Engineering Division at the Technical Center; to the branch level in the regional Airway Facilities divisions; and a standard distribution to all Airway Facilities field offices.

3. BACKGROUND. Asbestos has been used in North America since the 1800s with commercial use beginning in the early 1900s. Asbestos use in the United States peaked during the 1950s through the middle of the 1970s. Many Federal Aviation Administration (FAA) facilities were constructed during the period of extensive asbestos use. Today, as the amount of air traffic continues to increase, modernization of existing facilities and equipment is requited to manage the National Airspace System (NAS). ACM/PACM materials may be encountered and disturbed during renovation and demolition activities. In April 1999, the Office of Environment and Energy (AEE) published Order 3900.19B, FAA Occupational Safety and Health Program, that delineates policy for the management of ACM/PACM in FAA facilities. Order 1050.20A complements the latest edition of Order 3900.19 at the FAA level.

4. CANCELLATION. Order 1050.20, Airway Facilities Asbestos Control Program, dated May 23, 1995, is cancelled.

5. **SCOPE.** The requirements of this order apply to all facilities that are maintained and/or occupied by AF. These requirements are intended to establish a proactive ACP that will minimize employee exposure to asbestos fibers in all facilities that are maintained and/or occupied by AF and which contain known or presumed asbestos containing materials.

Distribution: A-W(AF/EE)-2; A-Y-AMP-lOO(2copies) Initiated By: AFZ-800
A-Z-ACT-600 (2 copies): A-X(AF)-3; A-FAF-O (STD)

6. DEFINTIONS. Appendix 1. Definitions, contains definitions of terms applicable to this order.

7. STANDARDS.

a. Federal, state, and local regulators have promulgated numerous regulations concerning asbestos. The Occupational Safety and Health Administration (OSHA) has regulated occupational exposure to asbestos since 1971. The first Environmental Protection Agency (EPA) regulations were issued in 1973 under the National Emission Standards for Hazardous Air Pollutants (NESHAP). The regulations listed below are those that are directly applicable to asbestos management. EPA, OSHA, and various state and local agencies have promulgated other regulations that may be applicable. Any revisions to the applicable Federal, state, and local regulations or FAA orders, resulting in more restrictive requirements than those specified in this order, shall be adopted. In addition to the requirements of the regulations contained below, adherence to the provisions contained in current applicable collective bargaining agreements concerning asbestos is required. The following standards are incorporated into this order by reference:

(1) 29 CFR 1910.1001, OSHA General Industry Asbestos Standard

(2) 29 CFR 1910.134, OSHA Respiratory Protection Standard

(3) 29 CFR 1926.1101, OSHA Construction Asbestos Standard

(4) 40 CFR 763, Subpart E, Asbestos-Containing Materials in Schools, Asbestos Hazard Emergency Response Act (AHERA)

(5) 40 CFR 763, Subpart E, Appendix C, Asbestos Model Accreditation Plan, as amended for Asbestos School Hazard Abatement Reauthorization Act (ASHARA)

(6) 40 CFR 61, Subpart M, NESHAP

b. Asbestos Exposure Limits: The current asbestos OSHA Permissible Exposure Limits (PEL) are defined in 29 CFR 1910.1001 and 29 CFR 1926.1101. The PEL's are as follows:

(1) Eight-hour time weighted average (TWA) standard of 0.1 fibers per cubic centimeter (f/cc) of air (fibers longer than 5 micrometers, with a length-to-diameter ratio of at least 3 to 1).

(2) Excursion limit (EL) of 1 f/cc as averaged over a sampling period of 30 minutes.

8. RESPONSIBILITIES. The following responsibilities and authorities are hereby established and assigned.

a. **The Director of Airway Facilities, AAF-1,** has the overall responsibility for ensuring implementation of the ACP requirements in Airway Facilities.

b. **The Resources Management Program (AFZ) shall:**

(1) Budget for the necessary funds and personnel to implement the ACP.

(2) Recommend to the Director of Airway Facilities, AAF-1, curtailment or suspension of any operation in the AF system that poses an asbestos hazard to FAA employees, members of the general public, or the environment.

(3) Conduct training needs assessments to identify AF personnel who are required to have asbestos-related training.

(4) Integrate ACP considerations into the planning and execution of the overall mission of AFZ and ensure that ACP requirements are considered as early as possible in all projects and programs.

(5) Develop a National Model Asbestos Operations and Maintenance (O&M) Plan and update the model plan as necessary to comply with current government regulations and technology.

(6) Assist AF in the implementation of asbestos training.

(7) Ensure that the requirements of this order are incorporated into FAA training to include those training courses conducted by the FAA Academy.

(8) Ensure that funds are procured for asbestos training as required by this order.

c. The NAS Implementation Program (ANI) shall:

(1) Ensure implementation of ACP requirements in all ANI projects. This includes program implementation at the Engineering Center (EC) and all Implementation Centers (IC).

(2) Consider ACP requirements as early as possible in all construction, installation, commissioning, modification, and other projects managed by ANI. Prior to any construction project, the ANI Environmental Occupational Safety and Health Coordinator will coordinate with the Facility Asbestos Coordinator (FAC)/Safety and Environmental Compliance Manager (SECM) to verify an asbestos survey of the affected area has been conducted.

(3) Ensure FAC/SECM review and coordination on project documents that involve disturbance of ACM/PACM.

(4) Ensure the use of the latest edition of Order 3900.57, FAA Pre-construction and Maintenance Project Safety and Health Checklist, and other applicable work permits.

(5) Ensure that the costs for compliance with project specific environmental and safety requirements are included in all cost estimates prepared by AM.

(6) Incorporate asbestos Federal, state, and local asbestos regulatory requirements into contract documentation such as specifications to ensure that contractor operations comply with these requirements.

(7) Require that future construction projects will use asbestos-free materials and will be documented as such upon completion.

d. **Regional AF Division Managers** (AXX-400) **shall:**

(1) Ensure that a supplement to this order is issued to establish an ACP in the region.

(2) Inform AFZ-1 and the regional administrator in a timely manner of all significant asbestos issues in the region.

(3) Ensure that adequate resources are provided to implement a region-wide ACP.

(4) Integrate the ACP into the planning and execution of the overall mission of the AF division in the region and ensure the ACP requirements are considered as early as possible in all construction, O&M, and other projects and programs.

(5) Ensure that other regional division managers within the region are kept informed of ACP activities and issues.

(6) Curtail or suspend any operation within the AF division that poses an asbestos hazard to FAA employees, members of the general public, or the environment and recommend such actions, as appropriate, to other division managers in the region.

e. The Program Director, Facilities Services and Engineering Division (ACT-600) and the Manager, Environmental, Safety and Emergency Management Division (AMP-100) shall:

(1) Issue supplements to this order to establish **ACPs** at the centers.

(2) Inform AFZ-1 and the center directors in a timely manner of all significant asbestos issues at the centers.

(3) Ensure that adequate resources are provided to implement **ACPs** at the centers.

(4) Integrate the **ACPs** into the planning and execution of the overall missions of the divisions in the centers and ensure the requirements are considered as early as possible in all construction, O&M, and other projects and programs.

(5) Ensure that other divisions in the centers are kept informed of ACP activities and issues.

(6) Curtail or suspend any operations within the divisions that pose an asbestos hazard to FAA employees, members of the general public, or the environment and recommend such actions, as appropriate, to other division managers in the centers.

f. **Regional AF Division Resource Management Branch Managers (AXX-420) shall:**

(1) Provide resources to administer and manage regional asbestos training programs for AF employees covered by this order.

(2) With input from the regional AF Division Operations Branch **(AXX-470),** consolidates, submits, and disseminates the regional AF division budget necessary to comply with all ACP requirements.

(3) With input from the Regional Program Manager for Environment and Safety (RPMES), ensures that adequate resources are requested for implementing the ACP.

g. The RPMES and Regional Occupational Safety and Health Managers (ROSHM) within the AXX-470 branch shall:

(1) Provide technical guidance and program oversight for the implementation and management of the ACP.

(2) Serve as the focal point for all regional ACP matters.

(3) Ensure that program and budget requests identify resource requirements to implement the ACP.

(4) Ensure that documentation associated with the ACP meets applicable regulatory requirements and review such documentation prepared by ANI and SMOs.

(5) Ensure routine inspections and program reviews of ACP activities are conducted and that inspection and surveillance records are maintained and updated.

h. **The RPMES and ROSHM in ACT-600 and AMP-100 shall:**

(1) Provide technical guidance and program oversight for the implementation and management of the ACPs at the centers and serve as the focal point for all center ACP matters.

(2) Ensure that program and budget requests identify resource requirements to implement the ACP.

(3) Ensure routine inspections and program reviews of ACP activities are conducted and that inspection and surveillance records are maintained and updated.

i. **The System Management Office (SMO) shall:**

(1) Coordinate with the RPMES and ROSHM to implement the ACP in the SMO.

(2) Consider ACP requirements and funding as early as possible in all construction, installation, maintenance, commissioning, modification, and other projects managed by the SMO. Prior to any such project, verify that an asbestos survey has been conducted of the affected area.

(3) Ensure review and coordination on project documents that involve disturbance of ACM/PACM. Ensure the use of the latest revision of Order 3900.57, FAA Preconstruction and Maintenance Project Safety and Health Checklist.

(4) Implement an ACP at all facilities occupied and/or maintained by AF where ACM/PACM has been identified or assumed.

(5) Ensure SMO employees receive training as outlined in this order.

(6) Implement a process to ensure that asbestos waste shipment records are prepared and signed by designated and knowledgeable personnel.

(7) Designate a FAC for facility/facilities that contain ACM/PACM.

(8) Ensure the person in charge of a facility notifies the FAC and the SMO manager or designee immediately of any release of ACM/PACM.

(9) Review and approve all Class I and Class II asbestos work permits.

(10) Require that future construction projects will use asbestos-free materials and will be documented as such upon completion.

j. **Facility Asbestos Coordinator (FAC) shall:**

(1) Serve as the designated asbestos contact for managing the ACP at the facility. One person may serve as the FAC for more than one facility.

(2) Review specifications and plans for construction/renovation work in the facility and determine if asbestos will be impacted by the work.

(3) Review all asbestos work permits and only forward those involving Class I or II asbestos operations to the SECM for approval.

(4) Provide notification to supervisors and/or bargaining unit representatives of impending asbestos projects in the facility.

(5) Ensure completed asbestos waste shipment records are received from the disposal site and kept on file at the facility for a minimum of 2 years.

(6) With the assistance of the SECM, develop and implement the facility specific asbestos O&M plan.

(7) Ensure that the ACM/PACM is periodically assessed as described in Paragraph 9a, Facility Asbestos Surveys

(8) Maintain asbestos accreditation as an AHERA asbestos contractor/supervisor.

9. AF ASBESTOS CONTROL PROGRAM. Each region and center shall develop and implement a written ACP that is intended to allow for the safe management of asbestos at FAA facilities. This program shall cover all buildings and facilities (as described in Paragraph 5, Scope, of this order) within the region's or center's jurisdiction, and shall be made available for inspection by employees and their authorized representatives. The ACP shall be reviewed annually and updated as necessary. At each facility, the ACP shall be supplemented by the facility specific plans as discussed below. The following elements shall be addressed: Facility Asbestos Surveys, Facility Plans, Work Control System, Response Actions, Respiratory Protection and Personal Protective Equipment, Air Monitoring, Quality Assurance/Quality Control (QA/QC), Training and Communications, Medical Surveillance and Recordkeeping.

a. Facility Asbestos Surveys.

(1) Baseline. A baseline asbestos building material survey shall be performed in all occupied NAS buildings and facilities. These inspections will be performed by accredited inspectors using AHERA guidelines. Buildings and facilities constructed prior to 1981 shall be presumed to contain ACM and shall be treated accordingly unless a definitive determination has been made that there is no ACM/PACM. The FAC shall assess on a case-by-case basis whether there is ACM/PACM in buildings and facilities constructed in 1981 or later. A building inspection involves:

(a) A visual inspection of all areas of the building/facility to identify locations of suspect materials.

(b) An inspection of the suspect materials to identify condition, potential for disturbance, and friability.

(c) The sampling of suspect materials for analysis by an accredited laboratory for asbestos content. See Paragraph 9g, QA/QC Program for Asbestos Sampling, of this order.

(d) Information obtained by the survey, including locations of all identified ACM/PACM shall be documented.

(2) Periodic Surveillance.

(a) All AF occupied NAS buildings and facilities identified as containing ACM /PACM shall be visually inspected at least annually by the SECM, FAC or another employee or contractor designated by the SECM or FAC.

(b) The employees or the contractors shall be trained, in accordance with Paragraph 9h, Training and Communication, of this order, to assess the condition of the ACM/PACM and to determine if corrective action is needed.

(c) The FAC shall determine the necessity for area air sampling or additional bulk sampling during these inspections.

(3) Preconstruction Surveys. Prior to the commencement of a renovation or demolition project, the affected facility or the part of the facility where the work will occur will be thoroughly inspected for the presence of asbestos.

b. **Facility Plans.**

(1) O&M Plan. The AF shall manage ACM/PACM in all AF maintained and/or occupied buildings and facilities through the implementation of an asbestos O&M plan. The goals of this plan are to minimize exposure to airborne asbestos and to maintain ACIWPACM in good condition. This is accomplished through the implementation of an effective management plan that includes standard operating procedures (SOP) and work practices for class III and IV work as

defined in 29 CFR 1926.1101. Each facility covered by this order shall have a site-specific O&M plan. The written O&M plan shall be kept current and follow all applicable OSHA, EPA, and FAA requirements.

(2) Facility Asbestos Abatement Contingency Plan (FAACP). Prior to the performance of any Class I or II asbestos abatement project(s) performed by a contractor, a written FAACP shall be developed. For Airport Traffic Control Towers (ATCT), Terminal Radar Approach Controls (TRACON), Automated Flight Service Stations (AFSS) and Air Route Traffic Control Centers (ARTCC), follow the National Model Asbestos Abatement Contingency Plans to develop the site-specific plans. For other occupied facilities, plans shall be developed based on the complexity of the project and the nature of the operations within the facility.

c. Work Control System.

(1) An Asbestos Work Control System shall be implemented in all facilities maintained and/or occupied by AF which contain ACM/PACM. The purpose of the Asbestos Work Control System is to control the activities, facility personnel, and work practices that may impact the asbestos within the facility. Personnel initiating the work must request, receive approval for, and post an asbestos work permit prior to all activities that may contact or disturb the asbestos. The FAC shall review and approve all work permits involving Class III and IV asbestos operations. For Class I and II asbestos operations, the FAC shall review and then forward work permits to the SECM for approval.

(2) In addition to the asbestos work permit, the requirements of the latest edition of Order 3900.57, FAA Preconstruction and Maintenance Project Safety and Health Checklist, shall be followed.

d. Response **Actions.**

(1) Asbestos response actions at FAA facilities are performed by either FAA employees (Class III and IV only) or contractors. One or more of these response actions may be required to safely manage and dispose of ACM/PACM. The response actions range from immediate removal of ACM/PACM to initiation of an O&M plan. The type of response action may be determined by any of the following: condition of the ACM/PACM, proximity to occupied areas, potential for disturbance, and/or planned renovations or demolition activities. When a potential health hazard to building occupants exists due to the presence of damaged or friable ACM/PACM, appropriate response actions shall be initiated.

(a) Class I and II asbestos abatement projects shall be conducted by qualified contractor employees in strict accordance with Federal, state, and local regulatory requirements and FAA orders.

1 Asbestos abatement specifications and project designs shall be prepared by an EPA or state certified project designer. Specifications shall be site specific and provide sufficient information to enforce the contract documents. Specifications and project design must include

detailed procedures to be used by the abatement contractor to safely and thoroughly abate the asbestos while assuring the safety and health of employees in the facility.

2 All abatement shall be performed by a licensed abatement contractor using workers who have been trained according to EPA requirements by state accredited training providers.

3 The contractor shall prepare a written asbestos abatement plan that shall comply with the requirements of the project specifications, and be compatible with the current facility asbestos abatement contingency plan, Federal, state, and local requirements, and other applicable FAA orders and guidelines.

4 Project oversight and environmental monitoring shall be performed by a licensed independent third party environmental monitoring firm contracted by the FAA. The work shall be performed under the direct supervision of a Certified Industrial Hygienist (CIH) employed by the environmental monitoring firm.

(b) Class III and IV asbestos abatement projects shall be conducted by FAA or contractor employees in strict accordance with the facility Asbestos O&M Plan, Federal, state, and local requirements and FAA orders. Air monitoring will be conducted as required and at the direction of the FAC.

1 Class III asbestos abatement projects include removal of Thermal System Insulation (TSI), surfacing ACM, nonfriable asbestos flooring, roofing, building composite materials during repair, and maintenance that disturb ACM/PACM.

2 Class IV activities include housekeeping in locations containing ACM/PACM and does not disturb the intact material. Class IV may also include the clean up of residue which may contain asbestos. The determination of whether residue may likely contain asbestos will be performed in coordination with the FAC/SECM/ROSHM and with technical guidance from AFZ-800, as necessary. Surface sampling (wipe, vacuum, tape, etc.) shall not be used for this determination due to the lack of regulatory standards and established, standardized criteria to interpret sample results.

(2) Storage, Transportation, and Disposal of ACM/PACM. All asbestos waste generated at FAA facilities will be segregated, stored, transported, and disposed of in accordance with all applicable Federal, state, and local requirements.

(a) Transportation. The waste hauling company will be licensed, per applicable state requirements, to transport ACM/PACM waste.

(b) Storage. ACM/PACM waste shall be stored inside leak-proof containers in designated areas until properly transported to an approved disposal site. The containers shall be properly labeled and stored in such a manner as to reduce the potential for accidental disturbance.

(c) Disposal. All ACM/PACM waste shall be disposed of at a site currently approved to accept asbestos waste materials in accordance with Federal, state, and local requirements. The transporter shall be required to provide a completed waste shipment record to

the FAA within 30 days after removal of the waste from the site. If the completed waste shipment record is not received back from the disposal site within 35 days, the FAC will contact the disposal site and the waste hauler to determine the status of the shipment. If the completed waste shipment record is not received within 45 days after removal of waste from site, the FAC will contact the appropriate state environmental department and the EPA to report the missing waste shipment record.

e. Respiratory Protection/Personal Protective Equipment.

(1) Respiratory Protection Program.

(a) OSHA requires the use of engineering controls as the preferred method to eliminate employee exposure to airborne asbestos. Respirators may be required and will be provided during the implementation of engineering controls, when engineering controls are not feasible, or if the engineering controls do not provide sufficient control of airborne asbestos exposure. Each facility with ACM/PACM, which requires the use of respirators in their O&M plan, shall have a written Respiratory Protection Program in accordance with 29 CFR 1910.134, 29 CFR 1926.1101, and 29 CFR 1910.1001 and applicable FAA orders. This written Respiratory Protection Program shall be site-specific and maintained at the facility. Employees who are required to wear a respirator shall be familiar with the program and trained in the use of respirators in accordance with Paragraph 9h, Training and Communications, of this order. Respirators shall be worn by FAA employees under the following circumstances:

1 During all Class III and IV asbestos work (planned/unplanned) where employee exposure exceeds or has a reasonable possibility of exceeding the OSHA PEL or EL.

2 During Class III asbestos work for which a negative exposure assessment (NEA) has not been conducted.

3 During all Class III jobs where Thermal System Insulation (TSI) or surfacing ACM/PACM is being disturbed.

4 During all Class IV work performed within regulated areas where employees performing other work are required to wear respirators.

5 During any non-asbestos operations that may disturb ACM/ PACM whether damaged or in good condition and may cause a potential airborne exposure above the OSHA PEL or EL.

6 As mandated in the FAACP and/or Facility Asbestos O&M Plan.

(b) Respirator selection shall be based on the following criteria:

1 Federal regulatory requirements and FAA orders.

2 Level of employee exposure or expected exposure to airborne asbestos fibers which is based on job duties, type of asbestos material, and air monitoring data.

3 Each respirator's protection factor as specified in 29 CFR 1926.1101, 29 CFR 1910.1001, 29 CFR 1910.134, or quantitative fit testing procedure. Qualitative fit testing may only be used to fit test half face or full face negative pressure air-purifying or powered air-purifying respirators that must achieve a fit factor of 100 or less as dictated in Table 1 of 29 CFR 1926.1101 .

(c) Various types of respirators and their protection factors for asbestos are specified in Table I of 29 CFR 1926.1101. The employee shall be allowed to pick a respirator that affords the required degree of protection from a selection of at least three sizes from at least two manufacturers that are approved by the National Institute for Occupational Safety and Health (NIOSH). The employee will be provided with a tight-fitting powered air-purifying respirator instead of a negative-pressure respirator when the employee chooses to use this type of respirator and such a respirator will provide adequate protection to the employee.

(d) Any employee wearing a negative pressure respirator shall be given a quantitative or qualitative fit test at the time of initial issue and at least annually thereafter. Positive and negative pressure fit checks must be performed by the employee prior to each use. No employee shall be allowed to wear a respirator without prior medical approval and appropriate training. Employees are required to receive annual training and annual medical evaluations to determine if they are medically able to continue to use a respirator.

(2) Personal Protective Equipment (PPE).

(a) Employees performing Class III asbestos work or Class IV asbestos work within a regulated area shah be provided with and required to wear disposable protective clothing such as coveralls or similar whole body clothing, heading covering, gloves, or foot coverings except as described in Paragraph 9f(l)(b)(4), Air Monitoring. The coveralls shall be worn only once and disposed of in bags labeled as asbestos-containing waste. An evaluation of employee exposure to heat stress should be performed whenever employees wear PPE for extended periods or work in hot or high humidity environments.

(b) Hard hats, safety glasses, gloves, hearing protection, safety shoes and other types of personal protective equipment may be used, as needed, depending on specific site conditions and work to be performed.

(c) Employees shall be trained in the proper use and limitations of the required PPE.

f. **Air Monitoring.** Air monitoring is used to document worker exposure to asbestos, to establish a baseline prior to an asbestos removal project, to confirm that engineering controls are working effectively, and to determine post-abatement t-e-occupancy. The type of sample (breathing zone or area), location (work area or general area), collection media (mixed cellulose ester or polyvinyl chloride), type of analytical method (Phase Contrast Microscopy or Transmission Electron Microscopy), and use of results is different for each the following air monitoring techniques.

(1) Personal Air Sampling. Personal sampling shah be performed as required by 29 CFR 1926.1101 and National Institute of Occupational Safety and Health (NIOSH) Pub No. 84-100 Method 7400 (PCM). If confirmation of results is warranted, then NIOSH Pub No. 84-100 Method 7402 Transmission Electron Microscopy (TEM) shall be used. OSHA requires personal sampling to document employee exposure and determine if respirators provide a sufficient protection factor. Exposure assessments for FAA employees performing Class III and Class IV work shall be performed in accordance with 29 CFR 1926.1101(f). Affected employees or their designated representatives shall be provided an opportunity to observe this monitoring. The sampling shall be conducted by an industrial hygienist under the direct supervision of a CM.

(a) Initial Exposure Assessment. Exposure assessments shall be performed at the beginning of each job involving Class III work. In addition, Class IV asbestos work also requires initial exposure assessment if the work is performed within a regulated area. It must include samples collected under work conditions having the greatest potential for exceeding the OSHA PEL or EL. Initial exposure assessments may be used as negative exposure assessments if they meet the criteria in the following paragraph of this order.

(b) Negative Exposure Assessment. A negative exposure assessment can be performed for each specific type of asbestos activity; e.g., glove bag work, filter change out. The following criteria may be used to demonstrate that employee exposures will be below the OSHA PEL and EL:

1 Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the PEL and EL under those work conditions having the greatest potential for releasing asbestos.

2 Monitoring results that have been conducted during prior asbestos jobs within 12 months of the current or projected job. The monitoring data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the current operations. These data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the PEL and EL. In addition, the asbestos jobs must have been conducted by employees whose training and experience are no more extensive than that of employees performing the current job.

3 The results of initial exposure monitoring of the current job ma& from breathing zone air samples that are representative of the 8-hour time weighted average (TWA) and 30-minute short-term exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

4 Asbestos-related jobs for which a negative exposure assessment is documented may be conducted without the use of respirator and personal protective equipment and monitoring at the discretion of the FAC and/or SECM.

(2) Area Air Sampling. Area air sampling shall be performed in accordance with NIOSH Pub No. 84-100 Method 7400 (PCM). If confirmation of results are warranted then NIOSH Pub No. 84-100 Method 7402 Transmission Electron Microscopy (TEM) shall be used. For Class I and Class II operations, area sampling will be performed by an Industrial Hygienist (IH) under the direct supervision of a CM. For Class III and Class IV operations, area sampling may be performed by FAA qualified personnel at the discretion of the FAC and/or SECM. The following are types of area air samples:

(a) Baseline level sampling. Baseline level air samples are required prior to any Class I and Class II asbestos abatement work. Class III asbestos abatement work may require baseline level air sampling. The type of baseline level air sampling will be consistent with the type of clearance sampling method required for a particular project.

(b) Abatement Area Air sampling. Area air sampling is performed inside and outside Class I and Class II asbestos work areas during abatement to confirm that engineering controls are working effectively and to ensure that proper removal practices are being performed in asbestos abatement areas. Area air sampling may be performed during Class III and Class IV abatement activities at the direction of the FAC and/or SECM.

(c) Clearance Air sampling. For Class I and Class II asbestos abatement work, area air samples, analyzed by Phase Contrast Microscopy (PCM) NIOSH 7400, shall be used to determine whether the abatement area may be reoccupied. In certain instances, clearance air samples may be collected and analyzed by TEM, using the EPA AHERA method specified in 40 CFR 763. For Class III asbestos abatement work, the FAC and/or SECM will determine on a case-by-case basis the need for clearance air sampling.

g. Quality Assurance/Quality Control (QA/QC) Program for Asbestos Sampling.

(1) The written ACP shall include procedures for a QA/QC program to ensure that the quality and integrity of the samples is maintained in the collection and analysis of asbestos bulk samples and both area and personal air samples.

(2) Sampling and analysis shall be performed in accordance with current OSHA and EPA requirements as follows:

(a) Samples shall be identified, stored, and delivered to a laboratory for analysis following appropriate chain-of-custody procedures.

(b) Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the Proficiency Analytical Testing (PAT) program or the National Voluntary Laboratory Accreditation Program (NVLAP). If microscopy is performed on site, the microscopist must have completed the NIOSH 582 course or equivalent. This person must also be registered with the AIHA Asbestos Analysis Registry (AAR) or have been successful in the most recent four rounds of the PAT program. Sample analysis shall follow the analytical method specified in the sampling strategy identified in the regulations and/or agency guidance.

(c) Asbestos bulk samples (collected during building surveillance and t-e-inspections) shall be collected according to EPA's revised bulk sample analysis method in "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R-93/116). Samples must be collected by an AHERA certified inspector. Analysis of samples shall be performed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as NVLAP or PAT.

h. **Training and Communications.**

(1) Training. AF employees who work in facilities that have ACM/PACM shall receive a level of training commensurate with their level of involvement in the ACP. The asbestos training courses and instructors must meet the standards established by the EPA standards or FAA orders, whichever is more stringent. The following types of training correspond to the level of involvement in asbestos maintenance activity and management responsibilities.

(a) Preconstruction Briefing. All AF employees who work in facilities that have ACM/PACM shall receive a briefing prior to any major renovations or construction projects involving Class I and Class II asbestos operations. The briefing will include the following topics: the properties of asbestos, hazards associated with asbestos including health effects, the facility-specific Asbestos Abatement Contingency Plan, overview of the construction project, and review of the AF ACP.

(b) Asbestos General Awareness Training. All AF employees who work in facilities that have ACM/PACM shall receive Asbestos General Awareness Training.

1 Maintenance and custodial (janitorial) workers who will work in close proximity with ACM/PACM, but will not disturb it (Class IV asbestos operations), shall also receive this training. They shall be informed about its presence and location in the facility and cautioned against disturbing these materials. Initial training must be completed before the workers' activity begins, and at least annually so long as the worker is involved with ACM/PACM. Examples of activities that may disturb these materials include, but are not limited to, hanging plants from ceilings, driving nails into walls, allowing furniture to dent or rub abrasively against walls, or gouging TSI or flooring materials.

2 General Awareness Training will be held for a minimum of 2 hours and should include the following topics:

a. Background information on asbestos.

b. Health effects of asbestos.

c. Overview of asbestos regulations.

d. Location of ACM/PACM in the building.

e. Precautions for working around ACM/PACM.

f. Facility specific asbestos plans (e.g. O&M plan).

g. Name and phone number for the FAC.

(c) Asbestos Operations and Maintenance (O&M) Training. This training is required for workers performing Class III asbestos operations. Initial training must be completed before the workers' activity begins. Refresher training will be conducted annually, so long as the worker is involved in Class III asbestos operations and shall be a minimum of 2 hours. Initial training shall be for a minimum of 16 hours and include the topics in Asbestos General Awareness Training as well as:

1 Federal regulatory requirements and FAA orders.

2 Nature of operations that could result in exposure to asbestos and proper asbestos-related work practices.

3 Methods for recognizing ACM/PACM.

4 Proper methods of handling ACM/PACM, including labeling and waste disposal procedures.

5 Respirator purpose, use, care, limitations, and fit-testing.

6 Protective clothing use and handling.

7 The relationship between smoking and asbestos in producing lung cancer and contact information for smoking cessation programs.

8 Hands-on exercises for techniques such as glove bag and HEPA vacuum use and maintenance.

9 Medical surveillance program requirements.

10 Proper worker decontamination procedures.

(d) Asbestos Abatement Worker Training. There currently is no requirement for this training for FAA employees due to the fact that they do not perform Class I and Class II asbestos operations. However, this training is required for contractor employees who will perform Class I and Class II asbestos operations in FAA facilities.

(e) Asbestos Contractor/Supervisor Training. This training is required for FAA employees responsible for oversight and management of Class I and Class II asbestos operations. The course is a minimum of 40 hours of training initially, including at least 14 hours of hands-on training. The annual refresher training required to maintain this accreditation is 8 hours.

(f) Asbestos Inspector, and Asbestos Project Designer Training. These training courses are for certification requited for all persons inspecting for asbestos or designing asbestos abatement projects in FAA facilities. The initial Asbestos Inspector course is a minimum of 24 hours with an annual 4-hour refresher course. The initial Asbestos Project Designer course is a minimum of 24 hours with an annual 8-hour refresher course.

(g) Respirator Training. The FAA shall provide respirator training prior to requiring the employee to use a respirator in the workplace. The training must be comprehensive, understandable, and meet the requirements outlined in 29 CFR 1910.134 and FM orders. Re-training shall be administered annually, and when the following situations occur:

1 Changes in the workplace or the type of respirator render previous training obsolete.

2 Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill.

3 Any other situation arises in which re-training appears necessary to ensure safe respirator use.

(2) Communications.

(a) Labels and Signs.

1 Asbestos warning signs shall be posted at all regulated areas at such distance from a regulated area so that an employee can see them and take protective steps to avoid entering the area.

2 Signs shall be posted at the entrance to mechanical rooms/areas containing ACM/PACM into which employees can reasonably be expected to enter.

3 Where feasible, warning labels shall be affixed to previously identified TSI or surfacing that is ACM/PACM, e.g. in areas where routine maintenance takes place and/or where there is reasonable likelihood of contact with these materials.

(b) Notification of outside contractors. Non-asbestos abatement contractors performing work in FAA facilities covered by this order shall be subject to the work control system in Paragraph 9c, Work Control System.

i. Medical Surveillance.

(1) The FAA shall provide medical surveillance for all FAA employees engaged in Class I or Class II asbestos abatement oversight and for FAA employees engaged in Class III asbestos abatement operations as requited by Order 3900.19, Chapter 15, Section 1506, Paragraph 9J, Medical Surveillance. The medical evaluation shall be performed prior to the employee wearing a respirator for any reason including a respirator fit test or any asbestos operation that requires the use of a respirator.

(2) Employees involved in Class IV asbestos operations requiring the use of a respirator shall at a minimum be required to complete the medical questionnaire, as outlined in 29 CFR 1910.134 (e), Medical Evaluations, and as supervised by a physician or other licensed health care professional.

j. **Recordkeeping.** A system for documentation of asbestos control program activities shall be implemented at the regional and SMO levels. Records shall be kept in accordance with the requirements of Order 3900.19, Chapter 15 and applicable Federal regulations. These records include but are not limited to:

(1) Employee asbestos medical surveillance records, including written evaluations of

employees' ability to wear respirators, shall be maintained for the duration of the employees' employment plus 30 years.

(2) Copies of employee exposure monitoring records shall be maintained, for at least 30 years, in the region and center human resources office, and in locations designated by the region and center ACP.

(3) Employee training records shall be maintained for at least 1 year beyond the last date of their employment with FAA.

(4) Respirator fit testing records shall be retained for respirator users until the next fit test is administered.

(5) All records and notifications associated with the identification, location, and quantity of ACM/PACM shall be maintained by the FAA for the duration of facility ownership and shall be transferred to successive owners.

(6) Waste shipment records of all asbestos waste shall be maintained for at least 2 years.

(7) Other records that should be maintained to support implementation and evaluation of the asbestos control program:

(a) Inspection/assessment reports.
(b) Periodic surveillance records.
(c) Work applications and permits.
(d) EPA and state notifications and permits.
(e) Project logs.
(f) Chain of custody forms.
(g) Fiber release incident reports.
(h) Abatement records.
(i) Equipment maintenance records.
(j) Written standard operating procedures.
(k) Regulated area entry/exit logs.
(I) Documentation of response to emergencies.

for Alan R. Moore
Director of Airway Facilities

APPENDIX 1. DEFINITIONS

Abatement. The process of removing, enclosing, repairing, or encapsulating ACM/PACM.

Air Monitoring. The process of measuring the airborne fiber content of a specific volume of air in a stated period.

Area Air Sampling. An air sample obtained by using a stationary air pump, with a sampling cassette in-line, to monitor air contaminants within contained or ambient air environments.

Asbestos. Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos and any of these minerals that has been chemically treated and/or altered. The asbestiform; i.e., fibrous form, includes varieties of serpentine (Chrysotile), riebecktite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite, actinolite, and tremolite.

Asbestos Containing Material (ACM). Any material containing more than one percent asbestos.

Asbestos Control Program (ACP). A comprehensive written program including policy and procedures for effective asbestos management, and covering at least the following areas: oversight of Class I and II asbestos abatement contracts; routine inspections and assessment of ACM/PACM; area air sampling, exposure monitoring, and clearance determination; Class III and IV asbestos O&M work performed by FAA employees, including an **O&M** Plan and related standard operating procedures (SOP); a facility asbestos abatement contingency plan for unanticipated releases of asbestos fiber in buildings and facilities during contracted Class I and II asbestos operations; signage procedures; medical surveillance; training; recordkeeping; and quality control.

Baseline level sampling. Area air sampling that is performed prior to the onset of asbestos abatement work, and may be referred to as the background level.

Breathing Zone. A hemisphere forward of the shoulder with a radius of 6 to 9 inches from the worker's nose. Employee exposure sampling must take place within this zone.

CFR. Code of Federal Regulations.

Certified Industrial Hygienist (CIH). One certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I Asbestos Operations. Activities involving the removal of TSI and surfacing ACM/PACM.

Class II Asbestos Operations. Activities involving the removal of ACM which is not TSI or surfacing materials. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

APPENDIX 1. DEFINTIONS (CONTINUED)

Class III Asbestos Operations. Repair and maintenance operations, where ACM including TSI and surfacing ACMPACM is likely to be disturbed.

Class IV Asbestos Operations. Maintenance and custodial activities during which employees contact but do not disturb ACM/PACM and activities to clean up dust, waste, and debris resulting from Class I, II, and III activities.

Clearance Sampling. The practice of using air monitoring in order to authorize an area for m-occupancy after an asbestos abatement project.

Demolition. The removal of any load-supporting structural member and any related razing, removing, stripping of asbestos products.

Disturbance. Activities that disturb the matrix of ACM/PACM, crumble or pulverize ACMPACM or generate visible debris from ACMPACM. This term includes activities that disrupt the matrix of ACMPACM, render ACM/PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM/PACM, no sized glove bag or waste bag in or&r to access a building component. In no event shall the amount of ACM/PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

Encapsulation. The procedure to coat ACM/PACM or abated substrates to control the possible release of asbestos fibers into ambient air.

Enclosure. An airtight, impermeable barrier around ACM/PACM to control airborne release of asbestos fibers into areas outside the barrier.

Employee Exposure. The exposure to airborne asbestos that would occur if the employee were not using respiratory protection.

Facility Asbestos Abatement Contingency Plan (FAACP). An FAA document that details oversight and response procedures to be followed by facility management, employees, any FAA competent person, and the independent third party CIH during a Class I or II asbestos operations performed by a contractor.

Fiber. A particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

Fit Factor. A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air outside the respirator to its concentration inside the respirator when worn.

APPENDIX 1. DEFINTIONS (CONTINUED)

Fit test. The use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual.

Friable Asbestos Containing Material. Capable of being crumbled, pulverized, or reduced to powder by hand pressure when dry, resulting in a release of airborne fibers.

High Efficiency Particulate Air (HEPA) Filter. A filter that is at least 99.97% efficient in removing mono-dispersed particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR Part 84 particulate filters are the N-series 100, R-series 100, and P-series 100 filters.

1. **N-series filter.** Respirator filters that are certified as being not resistant to oil as tested in accordance with 42 CFR Part 84.

2. **P-series filter.** Respirator filters that are certified to be oil-proof as tested in accordance with 42 CFR Part 84.

3. **R-series filter.** Respirator filters that are certified to be oil-resistant as tested in accordance with 42 CFR Part 84.

Industrial Hygienist. A professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

Negative Exposure Assessment. A demonstration by the employer, which complies with the criteria in 29 CFR 1926.1101, that employee exposure during an operation is expected to be consistently below the PELs.

Operations and Maintenance (O&M) Plan. A subset of the overall Asbestos Control Program, which provides work practices that will maintain ACM/PACM in good condition, ensure proper responses to minor asbestos releases, prevent further releases of asbestos, and monitor the condition of ACM/PACM.

Permissible Exposure Limit (PEL). OSHA PELs are worker exposure limits regulating the amount or concentration of a substance in air that shall not be exceeded:

1. An airborne concentration of asbestos of 0.1 fibers per cubic centimeter of air (f/cc) as an eight hour time weighted average (TWA).

2. An airborne concentration of asbestos of 1 .O f/cc as averaged over a sampling period of 30 minutes (Excursion Limit).

Personal Air Sampling. Sampling of the air within the breathing zone of an employee to determine asbestos fiber concentrations.

APPENDIX 1. DEFINTIONS (CONTINUED)

Powered Air-Purifying Respirator (PAPR). A type of respiratory protection which continuously supplies HEPA-filtered air to an enclosed face piece or hood.

Presumed Asbestos Containing Materials (PACM). TSI and surfacing materials found in buildings constructed before 198 1. For the purpose of this chapter, PACM may also include other types of materials (such as flooring, roofing, siding and transite) determined by the FAC as having the potential to contain asbestos.

Regulated Area (also known as Work Area). An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and other work areas within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the PEL.

Removal. All operations where ACM/PACM is taken out or stripped from structures or substrates, including demolition operations.

Renovation. The modifying of any existing structure, or portion thereof.

Repair. Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM/PACM attached to structures or substrates.

Surfacing ACM. Material that is sprayed, troweled-on, or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes) and that contains more than 1 per cent asbestos.

Thermal System Insulation (TSI). ACM/PACM applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.

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