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CHAPTER 11.8 ASBESTOS WORKER AND REGULATED AREA AIR SAMPLING

11.8.1. Air sampling objectives

11.8.1.1 Air sampling for airborne asbestos is done to meet a variety of needs. These include ensuring the protection of employees outside any asbestos Regulated Area, ensuring asbestos Regulated Area barriers maintain their integrity, documenting the exposures to asbestos workers, and meeting OSHA compliance requirements. These needs are met through a combination of the following types of air sampling: worker exposure, random area, work area, indoor ambient air, barrier, and clearance air sampling.

11.8.1.2 Perform air sampling and analysis at various stages of asbestos-related activities specified in Part 11 to establish and document that the procedures limit the spread of airborne ACM. Collect and evaluate all samples taken to meet the requirements of this chapter following the procedures specified in the OSHA Reference Method, 29 CFR 1926.1101, Appendix A; NIOSH Method 7400, or NIOSH Method 7402. Conduct all sampling under the supervision of a Certified Industrial Hygienist (CIH) or an individual who has completed the air monitoring technician training requirements of 25 TAC 295.64(g) and who meets the requirements for licensing to perform air monitoring under 25 TAC 295.

11.8.2. Air sampling plans

11.8.2.1 Every ACM abatement or removal project requires an objective review of the air sampling requirements. Project planners shall determine the number and type of samples during the preparation of the work plan in consultation with Occupational Health (x36726 or Email jsc-dl-occ-health@mail.nasa.gov). Each project may include the following air sampling requirements:

- a. Pre-job air sampling (background ambient air).
- b. During-the-job air sampling (worker or personal, work area, barrier integrity).
- c. Post-job air sampling (clearance).

11.8.2.2 Air sampling shall be conducted for any Class I and Class II asbestos abatement activity using critical barriers, and may be conducted for other asbestos-related activities listed in Part 11. Occupational Health will establish and conduct random or periodic sampling of routine Class III and Class IV asbestos work activities. Occupational Health is responsible for determining the effectiveness of control procedures identified in Part 11 by periodically air sampling work activities.

11.8.3. Worker exposure air sampling

11.8.3.1 To determine worker exposure to asbestos, the following apply:

- a. Determine employee exposures from breathing zone air samples that are representative of the 8-hour TWA as well as the 30-minute TWA short-term excursion limit of each employee. Take breathing zone samples by attaching a sample collection device, generally a filter cassette, to the front collar of the worker's uniform.

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- b. Conduct worker exposure air sampling on your employees as required by 29 CFR 1926.1101 if performing asbestos Class I and Class II work. Provide copies of the sampling results to Occupational Health, including TWA exposure calculations. Occupational Health may also perform air sampling on contractor employees as a “spot check” of the contractor’s procedures. Occupational Health will provide copies of its results to the asbestos work contractor. The asbestos work contractor shall:
 - (1) Conduct 1 day of sampling on each worker for a project lasting no more than 3 days when similar work is being done each day.
 - (2) Conduct 3 days of sampling on 10% of all workers for a job lasting between 3 days and one month.
 - (3) Conduct 3 days of sampling on 10 % of all workers every month for jobs lasting longer than one month.
 - (4) Re-accomplish all exposure assessments every year
- c. Occupational Health has a database of worker exposure air sampling for most of the Class III and Class IV asbestos activities described in Chapter 11.15 and Chapter 11.16. This database indicates that employees performing activities following the Class III and Class IV procedures in Part 11 have exposures less than the OSHA PEL of 0.1 f/cc of air. Any on-site contractors performing asbestos-related work may use the Occupational Health database to meet the “initial exposure assessment” and “negative exposure assessment” requirements of either 29 CFR 1910.1001 or 29 CFR 1926.1101. Occupational Health periodically performs additional worker air sampling of Class III and Class IV activities to maintain and update its database, and will provide copies of results to the employer or supervisor of the monitored employee.
- d. On-site contractors performing Class III or Class IV work at JSC are encouraged to perform your own personnel air sampling. They shall provide copies of any sampling results to Occupational Health.
- e. Off-site contractors performing Class III asbestos-related work at JSC shall conduct worker exposure air sampling on their employees as required by 29 CFR 1926.1101, and provide copies of sampling results to Occupational Health.
- f. Notify the employee(s) affected by air sampling results individually, as outlined in the current applicable OSHA regulation. Maintain a copy of each individual’s air sampling results per OSHA Recordkeeping Requirements (29 CFR 1910.20, 29 CFR 1910.1001, 29 CFR 1926.1101).

11.8.4. Background and other ambient air sampling

11.8.4.1 Occupational Health will conduct:

- a. Background ambient air sampling in buildings before any Class I or Class II asbestos abatement project where critical barriers and enclosures are to be erected. Occupational Health will conduct or provide results of background ambient air sampling prior to any other project that may disturb spray-on asbestos insulation and has the potential to affect any building’s ambient conditions (e.g., roofing projects).

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- b. Building ambient air sampling during any project that may disturb spray-on asbestos insulation and which has the potential to affect any building’s ambient conditions (e.g., roofing projects). This sampling is in addition to the routine building ambient sampling discussed in Chapter 11.3, paragraph 7. Ambient air sampling results will be compared to the background samples and to the JSC “safe occupancy” level of 0.01 f/cc.

11.8.5. Regulated area barrier and containment integrity air sampling

11.8.5.1 The following applies to sampling for integrity of barriers and containment:

- a. Occupational Health will conduct perimeter area surveillance during all Class I and Class II asbestos abatement projects as required by 29 CFR 1926.1101. The purpose of this surveillance is to ensure that no asbestos exposures occur in adjacent areas and that any critical barriers do not leak. Air sampling may or may not be performed on projects conducted outdoors or with outdoor barriers. (Reference 29 CFR 1926.1101(g)(4)(ii)(B)).
- b. Occupational Health may conduct periodic perimeter area surveillance of routine Class III and Class IV asbestos work to ensure that established procedures control asbestos releases.
- c. All barrier air sampling results will be compared to the JSC “safe occupancy” level of 0.01 f/cc. (Reference 40 CFR 763.90(i)(5) and 29 CFR 1926.1101(g)).

11.8.6. Work area air sampling

Occupational Health may perform air sampling inside Regulated Areas where critical barriers are not used, or may perform air sampling adjacent to glovebag abatement or removal activities. The purpose of this sampling is to “spot check” procedures and to ensure asbestos is being controlled.

11.8.7. Clearance air sampling

11.8.7.1 To clear an asbestos job for completion:

- a. Occupational Health is the only organization authorized to declare an area safe for re-occupancy after clearance air sampling on asbestos abatement, repair, or emergency response activities. The decision will be based on the results of visual inspection and clearance air sampling.
- b. Occupational Health will perform clearance air sampling on all Class I and Class II asbestos abatement activities to ensure that the area is safe for re-occupancy. If enclosures or critical barriers are erected, Occupational Health may use aggressive sampling techniques to collect clearance air sampling air samples before the enclosures or critical barriers are disassembled. You shall never disassemble the enclosures or critical barriers until Occupational Health determines that the area is safe for re-occupancy and gives approval to disassemble the enclosures or critical barriers.
- c. Occupational Health may perform clearance sampling on Class III asbestos activities. The decision to perform this sampling depends on the specific task and the professional judgment of the industrial hygienist about the potential health hazard to other building occupants. This sampling may also be performed to “spot check” procedures and to ensure asbestos is being controlled. If clearance air sampling is conducted, you shall not disassemble the Regulated Area, nor remove the demarcation, until Occupational Health determines that the area is safe for re-occupancy.

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- d. Occupational Health may perform clearance air sampling on emergency response asbestos cleanup activities. The decision to perform this sampling will depend on the amount of asbestos material spilled, whether a room or area was closed off, and the professional judgment of the industrial hygienist regarding the potential health hazard to other building occupants. If clearance air sampling is conducted for emergency response activities, you shall not disassemble the Regulated Area, nor remove the demarcation, until Occupational Health determines that the area is safe for re-occupancy.
- e. Occupational Health will compare all clearance air sampling results against the JSC “safe occupancy” level of 0.01 f/cc. (Reference 40 CFR 763.90(i)(5) and 29 CFR 1926.1101(g)).