

US EPA ARCHIVE DOCUMENT

Appendix F Reference Levels and Analytical Sensitivity

Reference Levels for All Air Samples

The USEPA Planning Team determined that there will be no site-specific action level for air data collected during the El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment. All data will be compared to reference levels, which will be determined during the study using some of the procedures described in the Asbestos Hazard Emergency Response Act (AHERA).

The AHERA rule describes primarily a “clearance” protocol for indoor air in school buildings (it generally is used to ensure that the space is safe for re-entry by children, teachers and other employees after asbestos abatement work has been completed), and so not all of the procedures may be applicable to the El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment. The procedure requires a sample set that includes at least five indoor samples, five outdoor samples, and three blanks.

Asbestos concentrations in outdoor air samples collected from inside an activity area will be compared to the concentration of asbestos in “background” or “reference” samples collected from outside of the activity area. The Z-test described in Appendix A to Subpart E of Part 763 of the AHERA rule, will be used to determine whether the average concentration for samples collected from inside the activity area is statistically greater than the average concentration for samples collected from outside the activity area.

Analytical Sensitivity for All Air Samples

The data generated for this project must be obtained with an analytical sensitivity sufficiently low to be useful for direct comparison between sampling data collected from inside activity areas and sampling data collected from outside of activity areas. Thus, the USEPA Planning Team determined that the analytical sensitivity requirement for all outdoor air samples will be 0.001 fiber per cubic centimeter. All data, including zero structure detections, will be presented with the corresponding 95 percent confidence interval.

With a sensitivity of 0.001 fiber per cubic centimeter, the 95 percent confidence interval for a detection of zero structures (i.e., a non-detect) would be the interval from zero to less than 0.003 fiber per cubic centimeter.

Achieving the analytical sensitivity for asbestos in air samples is generally dependent on two factors: the volume of air collected through the filter and the area of the filter searched (i.e., number of grid sections searched multiplied by the area of the grid sections searched). The required sensitivity will be achieved for each collected sample by increasing the filter search areas as needed.

For higher volume samples (e.g. greater than 4,000 liters) collected using high-flow samplers, an analytical sensitivity of 0.0003 fiber per cubic centimeter may be requested. With a sensitivity of 0.0003 fiber per cubic centimeter, the 95 percent confidence interval for a detection of zero structures (i.e., a non-detect) would be the interval from zero to less than 0.001 fiber per cubic centimeter.

Reference Levels for All Soil Samples

The USEPA Planning Team determined that there will be no site-specific action level for soil data collected during the El Dorado Hills Naturally Occurring Asbestos Multimedia Exposure Assessment. All data will be compared to a reference concentration of 1% for polarized light microscopy (PLM) analysis and 0.01% by weight for transmission electron microscopy (TEM) analysis.

Analytical Sensitivity

The data generated for this project must be obtained with an analytical sensitivity sufficiently low to be useful for indirect comparison with air data and direct comparison with similar data from other locations. The USEPA Planning Team determined that a sensitivity of 1% by area for PLM analysis and a sensitivity of 0.0025% by weight for TEM analysis would be sufficient for comparisons.