

Vittorio K. Argento, Ph.D., P.E.
Environmental Engineering Services
1226 N. Cedar Ridge
Duncanville, Texas 75116

PLAINTIFF'S EXHIBIT

BIR-165

The Recon Environmental Report, Air Sampling Protocol Document, volumes 1, 2, 3, and 4 were read and reviewed. As a result of this reading and review of this document, I have come to the following conclusions:

1. The roofing materials involved in this project were products of the Bird Incorporated roofing company.
2. The roofing removal procedures were consistent with the techniques used by roofers in the removal of roofing materials from an existing structure.
3. The personal and area monitoring results were an accurate indication of a worker's exposure to airborne asbestos fibers and area concentrations of airborne asbestos fibers.
4. The sample collection and analysis protocols for both Phase Contrast Microscopy (PCM) and Transmission Electron Microscopy (TEM) represented currently accepted practices and procedures for the determination of worker exposure to airborne asbestos fibers and area concentrations of airborne asbestos fibers.
5. The documentation in the report was sufficient to allow worker time weighted average exposures to airborne fibers by PCM, and airborne asbestos fibers by TEM, to be calculated for each day the worker was involved with the project.
6. The documentation in the report was sufficient to allow the maximum possible eight-hour time weighted average (TWA) worker exposures to airborne fibers by PCM, and airborne asbestos fibers by TEM, to be calculated for each day the worker was involved with the project.
7. The worker 8-hour time weighted average fiber (PCM) and asbestos (TEM) exposures were well below the current worker protection standards of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).
8. The current OSHA worker asbestos exposure standard, established in 1994, is more stringent than any previous asbestos exposure standard established by OSHA. Therefore, exposures of roofers to airborne asbestos fibers from similar roofing removal operations conducted prior to 1994 would have been an even smaller fraction of the existing acceptable asbestos exposure standard.
9. Based on these results and conclusions, it is my opinion, to a reasonable degree of scientific certainty, that removal of Bird Incorporated roofs, conducted in a manner similar to the techniques and practices identified in the Recon Environmental report (#W50276), did not pose a health threat to the roofing workers from exposure to asbestos fibers and that the Bird Incorporated roofing product was a safe product to use.

Vittorio K. Argento, Ph.D., P.E.
Environmental Engineering Services
1226 N. Cedar Ridge
Duncanville, Texas 75116

The U.S. Occupational Safety and Health Administration revised the permissible exposure limit (PEL) for airborne asbestos fibers, effective October 11, 1994, to 0.10 fibers per cubic centimeter (f/cc) of air, based on an 8-hour time weighted average (8-hour TWA). On September 14, 1988, OSHA established an excursion limit, or short term exposure limit (STEL) for asbestos fibers of 1.0 f/cc, based on a 30 minute averaging time.

Prior OSHA asbestos exposure standards were:

TABLE 1

YEAR	Asbestos Permissible Exposure Limit
1986	0.2 f/cc, 8-hour TWA
1976	2.0 f/cc 8-hour TWA
1972	5.0 f/cc 8-hour TWA

Based on the personal monitoring data provided in the Recon report, the following worker time weighted average exposures and maximum possible 8-hour time weighted average exposures were calculated. Since none of the worker's monitoring data indicated that they worked an 8-hour day (most worked approximately 9 to 11.5 hours each day), the workers daily time weighted average exposure for the entire work day was calculated. These exposures were then converted to the maximum 8-hour time weighted average the worker could have experienced each day. The maximum possible 8-hour time weighted average exposures could then be compared with the OSHA permissible exposure limit for asbestos. These exposure calculations are tabulated in Table 2, on the next page.

The asbestos fiber exposures, established by the TEM analyses were calculated for each workers daily exposure. These exposures are shown in Table 3.

Vittorio K. Argento, Ph.D., P.E.
Environmental Engineering Services
1226 N. Cedar Ridge
Duncanville, Texas 75116

TABLE 2
WORKER DAILY TIME WEIGHTED AVERAGE EXPOSURES
AND
MAXIMUM POSSIBLE 8-HOUR TIME WEIGHTED AVERAGE EXPOSURES

Date	Worker	Daily Time Weighted Average Exposure	Maximum Possible 8-Hour TWA
6-27-95	Lewis Delvin	0.040 f/cc	0.046 f/cc
6-27-95	Marshall Richards	0.035 f/cc	0.040 f/cc
6-27-95	Antonio Ramos	0.011 f/cc	0.012 f/cc
6-27-95	Edgar Ramos	0.006 f/cc	0.006 f/cc
6-27-95	John Leja	0.012 f/cc	0.013 f/cc
6-27-95	Gary Berrios	0.008 f/cc	0.010 f/cc
6-27-95	Ovidio Baralaona	0.018 f/cc	0.009 f/cc
6-27-95	Erensto Delgado	0.013 f/cc	0.006 f/cc
6-28-95	Lewis Delvin	0.023 f/cc	0.028 f/cc
6-28-95	Marshall Richards	0.016 f/cc	0.020 f/cc
6-28-95	Antonio Ramos	0.016 f/cc	0.020 f/cc
6-28-95	Edgar Ramos	0.022 f/cc	0.026 f/cc
6-28-95	John Leja	0.038 f/cc	0.020 f/cc
6-28-95	Gary Berrios	0.019 f/cc	0.023 f/cc
6-28-95	Erensto Delgado	0.018 f/cc	0.021 f/cc
6-29-95	Lewis Delvin	0.008 f/cc	0.012 f/cc
6-29-95	Marshall Richards	0.011 f/cc	0.016 f/cc
6-29-95	Antonio Ramos	0.016 f/cc	0.024 f/cc
6-29-95	Edgar Ramos	0.013 f/cc	0.019 f/cc
6-29-95	John Leja	0.016 f/cc	0.023 f/cc
6-29-95	Gary Berrios	0.007 f/cc	0.011 f/cc
6-29-95	Erensto Delgado	0.019 f/cc	0.014 f/cc

Vittorio K. Argento, Ph.D., P.E.
Environmental Engineering Services
1226 N. Cedar Ridge
Duncanville, Texas 75116

TABLE 3

**WORKER DAILY TIME WEIGHTED AVERAGE EXPOSURES
TO ASBESTOS FIBERS
BASED ON TEM COUNTS OF ASBESTOS STRUCTURES**

Date	Worker	Daily Time Weighted Average Exposure To Asbestos Fibers
6-27-95	Lewis Delvin	0.0009 f/cc
6-27-95	Marshall Richards	0.0000 f/cc
6-27-95	Antonio Ramos	0.0000 f/cc
6-27-95	Edgar Ramos	0.0000 f/cc
6-27-95	John Leja	0.0000 f/cc
6-27-95	Gary Berrios	0.0000 f/cc
6-27-95	Ovidio Baralaona	0.0000 f/cc
6-27-95	Erensto Delgado	0.0000 f/cc
6-28-95	Lewis Delvin	0.0000 f/cc
6-28-95	Marshall Richards	0.0000 f/cc
6-28-95	Antonio Ramos	0.0083 f/cc
6-28-95	Edgar Ramos	0.0000 f/cc
6-28-95	John Leja	0.0000 f/cc
6-28-95	Gary Berrios	0.0000 f/cc
6-28-95	Erensto Delgado	0.0032 f/cc
6-29-95	Lewis Delvin	0.0000 f/cc
6-29-95	Marshall Richards	0.0000 f/cc
6-29-95	Antonio Ramos	0.0000 f/cc
6-29-95	Edgar Ramos	0.0017 f/cc
6-29-95	John Leja	0.0000 f/cc
6-29-95	Gary Berrios	0.0000 f/cc
6-29-95	Erensto Delgado	0.0000 f/cc

