SAMPLING OF BRAKE REPAIR WORK

On September 21, 1979 samples of ambient particulate were collected in a garage while brake work was being performed. A representative of Nilfisk of America was present to demonstrate the value of Nilfisk control equipment in brake lining repair H&S work. Sampling was permitted on the condition that the fac Industrial Hygiene and its location remain anonymous.

BDD SC
EER DEH
TBB CD
RMJ PW
JES LMN
MJV EDS
NOV 23 1982

Three types of ambient samples were collected:

In the garage away from the workspace (background levels).
Near the workspace while Nilfisk devices were in use.
Near the workspace without any controls.

Table 1 shows the result of analysis of such samples by Scanning Electron Microscope (SEM).

TABLE 1

BACKGROUND LEVELS OF ASBESTOS

Sampling Location	Duration (Min.)	Sampling Flow (lpm)	Fibers	Fields	SEM Concentrati (f/cc)
About 25' from workspace	60	2.2	4	330	0.21
About 55' from workspace	60	2.2	4	450	0.06

Samples away from the workspace were collected during brake work taking place inside Nilfisk control equipment. They would typif fiber levels in the garage from day to day since, as Table 2 shows, fiber release when the Nilfisk devices were used. Release may be see to be minimal.

PLAINTIFF'S EXHIBIT
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TABLE 2

AMBIENT LEVELS OF ASBESTOS DURING NILFISK-CONTROLLED WORK

Sampling Location	Duration (Min.)	Sampling Flow (lpm)	Fibers	Fields	SEM Concentrations (f/cc)
On Nilfisk exhaust vent during front brake work	10	2.2	0	350	0
On Nilfisk exhaust vent during front brake work	8	1.9	0	390	0
On worker during both front and rear brake work (above)	25	1.9	1	550	0.03
On Nilfisk exhaust vent during truck front brake work	5	2.2	0	420	0
On worker during truck front brake work	15	2.2	0	470	0
6' from truck front brake work	22	1.9	0	400	0
On Nilfisk exhaust	10	2.2	0	330	0

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Clearly, the one fiber collected during the Nilfisk-controlled work could have come from background contamination.

Two sets of samples were collected near the workspace when brake work was being done in the usual manner, without Nilfisk controls. First, a brake housing was removed and cleaned by being struck repeatedly with a hammer. Second, the worker opened a brake housing, cleaned it with a jet of compressed air, then swept up all the debris which had accumulated on the garage floor. Employees and supervisors gave assurance that these procedures were routine.

TABLE 3

AMBIENT LEVELS OF ASBESTOS
DURING ROUTINE BRAKE WORK

Sampling Location	Duration (Min.)	Flow (lpm)	Fibers	Fields	SEM Concentration (f/cc)
Clean housing by banging:					
On Worker	14	2.2	14	320	1.29
3' from Workspace	14	2.2	1	150	0.20
10' from Workspace	14	2.1	3	105	0.88
25' from Workspace	14	2.3	0	380	0
Clean Housing with Compressed Air:					
On Worker	13	2.2	12	450	0.85
3' from Workspace	10	2.2	7	390	0.74
10' from Workspace	10	2.1	6	400	0.65
25' from Workspace	10	2.3	1	400	0.10

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Dust dispersed more rapidly and extensively with compressed air cleaning as the results 25 feet from the workspace indicate.

Three samples of dust were also collected during garage visit:

Brake dust - rear brakes.
Brake dust - truck front brakes
Overhead dust on rafters

Optical microscopy did not reveal any asbestos in these samples. Brake dusts were primarily quartz and carbon, while overhead dust was almost entirely cellulose. SEM analysis revealed a small number of very short asbestos fibers among these more visible substances.