RE: "CARPET DIALOGUE"

ON THE NEED FOR DATA

Bill Hirzy
NFFE Local 2050
November 29, 1990

Last month, following several weeks of work and several presentations of very significant information exclusively by overhead projection, the plenary was asked to sign off on a proposal by the Carpet and Rug Institute. That proposal was prefaced by a recitation of EPA's denial of NFFE's petition, CPSC's failure to find a cause and effect relationship between new carpet and consumers' adverse health impacts, and the results of limited toxicity testing of 4-phenylcyclohexene. The implication of the preface material was that there is really no credible basis for concern over carpet systems' emissions, so the quick flashes of data we have seen are enough on which to base the dialogue's actions.

The first purpose of this presentation is to make a limited recitation that is symmetrical with the one we heard at the last plenary. The second purpose is to show, as if that were necessary, that more than overhead projector presentations of data are needed for us to do our work legitimately.

WHY ARE WE HERE?

At the last plenary, we were presented with a proposal from the Carpet and Rug Institute on product testing and certification. This proposal is a fine step in the right direction by CRI. The proposal was prefaced, however, with an assertion to the effect that there are no credible complaints about indoor air quality related to carpeting. My presentation is intended to give another view of the impact of certain carpeting on indoor air quality, and to therefore re-state a reason for us being here.

The first set of transparencies includes excerpts from the report prepared by EPA, NIOSH and Yale University on EPA's Headquarters experience with new carpet installed since the Fall of 1987, along with some monitoring data gathered at the Waterside Mall facility during 1988.

Some 38% of Waterside Mall employees (1141 people) attributed eye, nose or throat irritation to new carpet fumes in 1988. At Crystal Mall, where less carpet was laid, 22% of respondents made the same attribution (98 people). While the data shown on the transparencies are from a study conducted by EPA, NIOSH and Yale in February 1989, complaints actually began in the Fall of 1987. Those complaints resulted in EPA air monitoring in Waterside Mall in May, June, August and November, 1988.

Monitoring results indicate that 4-phenylcyclohexene levels in workspaces one week after installation (the period that most employees were kept out of the newly carpeted space) probably were

in the range of 5-50 ppb, depending on environmental and product content variables. No other compound identified in the monitoring could be as clearly linked spatially and temporally with the carpet installation.

The next set of transparencies includes excerpts from the thesis of C. L. Crabb, supervised by M. Van Ert and D.E. Carter. These show that by 1984 these workers had uncovered a substantial number of complaints about new carpeting, including complaints from situations in which no carpet-laying adhesive was used. These workers also found that the single chemical they were able to identify as being linked to the carpets and the complaints was 4-PC. This thesis reports that Arizona officials received "numerous complaints from homeowners and businesses" about carpet-related indoor air pollution; it is reasonable to assume that "numerous" complaints in Arizona translate into a substantial number of such complaints nationwide.

The next transparency is of the title page of a study by O'Brien and Decoufle' showing a four-fold excess of deaths from lymphocytic leukemia among north Georgia Carpet production workers. This disease is a lesion of the immune system, the hypothetical locus of development/expression of multiple chemical sensitivity, a condition whose acquisition some people, including EPA employees, attribute to exposure to new carpeting.

Given the data we have glimpsed from Marilyn Black's work showing the composition of the VOCs from carpet systems after ca. 3 days is mostly 4-PC, the information from Crabb et al.--to the effect that people suffered ill effects until they found that carpet was the problem and had it removed--indicates the importance of dealing with lowering 4-PC levels as part of our overall concern with Total Volatile Organic Compounds in the dialogue.

LIMITED DATA AVAILABILITY

We have had presentations on lowering 4-PC in the latex manufacturing process and in the full-scale carpet finishing process (along with other VOCs). Additionally, we have seen information generated by Mark Van Ert on lowering 4-PC levels in laboratory studies of carpet finishing. Unfortunately, only the Van Ert work has been made available in a form that permits reflective consideration of the meaning of the work.

The valuable work of Dr. Black, likewise, must be made available in hard copy form so that we can study and consider such questions as: is a single 24-hour sample of emissions sufficient? what sources are contributing TVOCs? latex? dye carriers? filament process aids and spinning oils? adhesive components? pad components?

Similarly, while the reduction of 4-PC levels by a factor of two over recent years is certainly a big step in the right direction, as is recognition by latex producers of the importance

of this effort, we have not had enough data presented to judge whether in fact the technological limit has been reached for reductions of 4-PC levels. In deed, the bit of hard copy on the subject that we have seen implies pretty clearly that economics rather than technology has set the present limit on this line of work to reduce TVOCs.

Last month, latex researchers implied that further reductions in 4-PC were technically infeasible. We need to see performance testing results on latex produced under various reaction and purification schemes in order to judge the veracity of their assertion. We would be remiss in our duty if we did not insist on documentation.

Clearly, confidentiality is a major concern. The dialogue may wish to consider methods of encouraging sharing of process engineering data or other ways to make available to all latex producers the processing information that would permit them to make a product with the lowest possible 4-PC level.

Summing up, in order for the dialogue to fulfill its charge to produce a non-regulatory program that will minimize the contribution of carpet systems to indoor air quality problems, we all must have hard copy of results of studies done toward that end. For such hard copy to reside only in the hands of a few of the industrial interests at the table would mean that the rest of the group is being asked to rubber stamp industry proposals, proposals based on the preface/premise that there is no credible basis for concern over carpet emissions. We are all big boys and girls and understand why that assertion is made. We all also know that the assertion is not true, and that we have serious work to do.

The Washington Times

FEDERAL REI

EPA to remove troublesome c

By Marie Belson
THE WASHINGTON TIMES

The Environmental Protection Agency's decision to rip out carpeting at the complaint prone Waterside Mall will hopefully reduce the number of health related complaints, management said yesterday

"Although unable to establish a scientific link between the carpet and employee problems, EPA decided to remove the carpeting in rooms with high frequencies of employee complaints," the EPA said in a statement

The carpet will be removed from those rooms at the EPA headquarters office, 401 M St SW, by Sept 24, David Weitzman, director of the Environmental Health and Safety Division, said after the decision was announced Wednesday

"There is one room in particular where the carpet will be removed," Mr Weitzman said. "Room 2827 is that specific room. Other rooms we're still identifying based on the amount of symptoms people have reported We recognized that some rooms continue to be complained about"

The cost of the removal "won't cost a whole lot," Mr. Weitzman said. "Not a large amount of money."

Management will attempt to determine what effect the removal has on employees' health problems.

"I'm very interested in seeing if the rate of complaints changes after removal," Mr. Weitzman said. "The freshly manufactured carpet clearly caused the initial illness, but it's not clear if it still caused it after two years."

The carpet will be replaced by vinyl floor tiles The glue used should not affect air quality and most work will be done at night in order to air out the rooms, Mr. Weitzman said.

More than 100 EPA employees out of the 5,700 who work at the Waterside Mall have complained of dizziness, rashes, headaches, nausea, disorientation, memory loss and throat and eye irritations since the carpet was first laid two years ago The severity of employees' illnesses has varied.

When complaints began to multiply, the EPA asked the Labor Department to expedite workers' compensation claims. The agency also permitted some of the affected employees to work at home Others were assigned to other buildings

Although air quality has been an EPA issue since the building was first leased in 1972, employees say it worsened after the carpet was laid between the autumn of 1987 and the spring of 1988.

Air quality problems been caused by the lar workers and equipmen ing, the building's ow and Reiner, Inc., has sa lems are compounded ducts are blocked by equipment

Several studies, incl conducted by EPA m concluded that the adhe lay the 27,000 square ya released the toxic co phencyclohexene, or 4-I

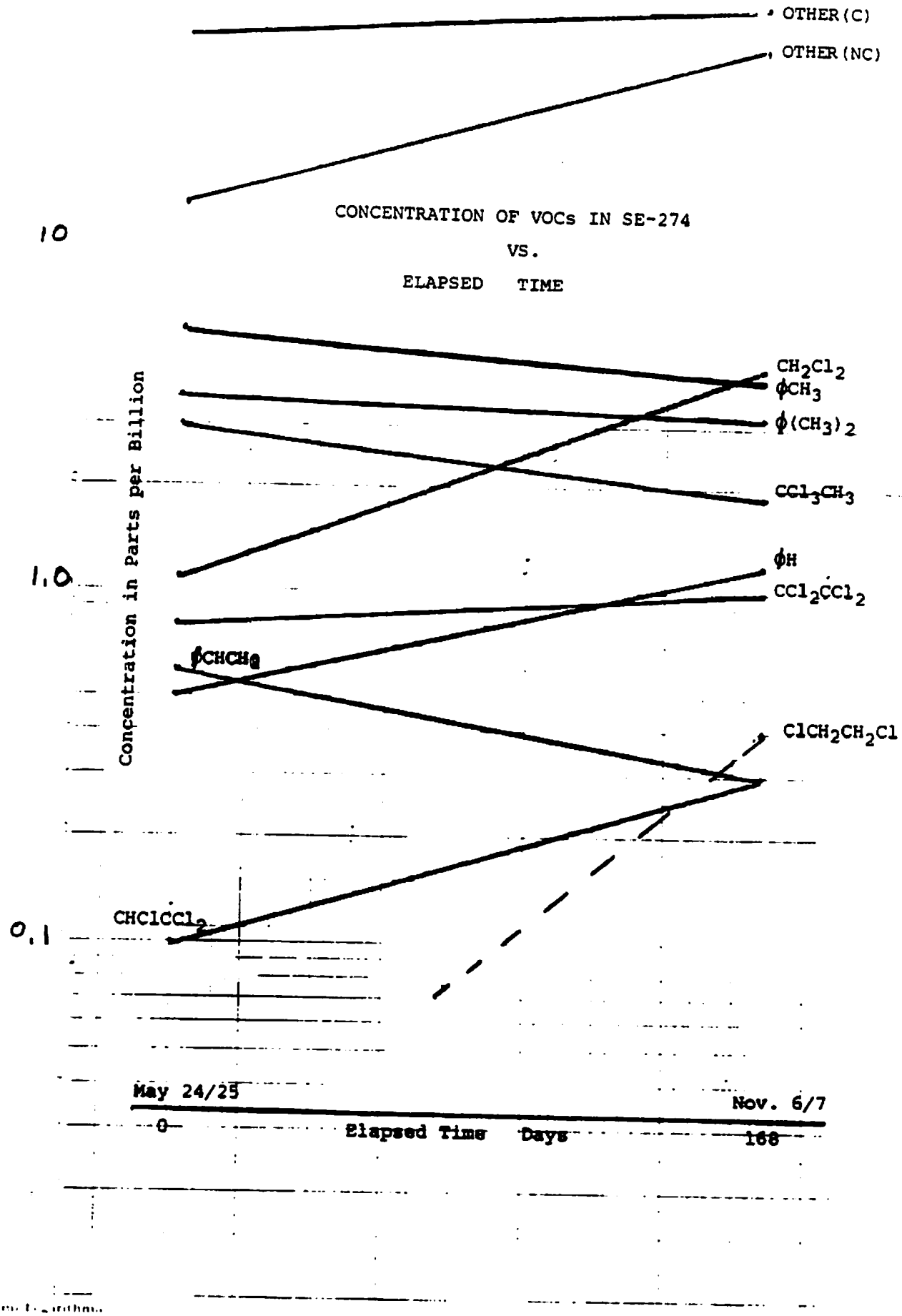
Union officials at EP management to remov since it was first laid years ago After the reca suspended in April 1988 jected union demands pet's removal

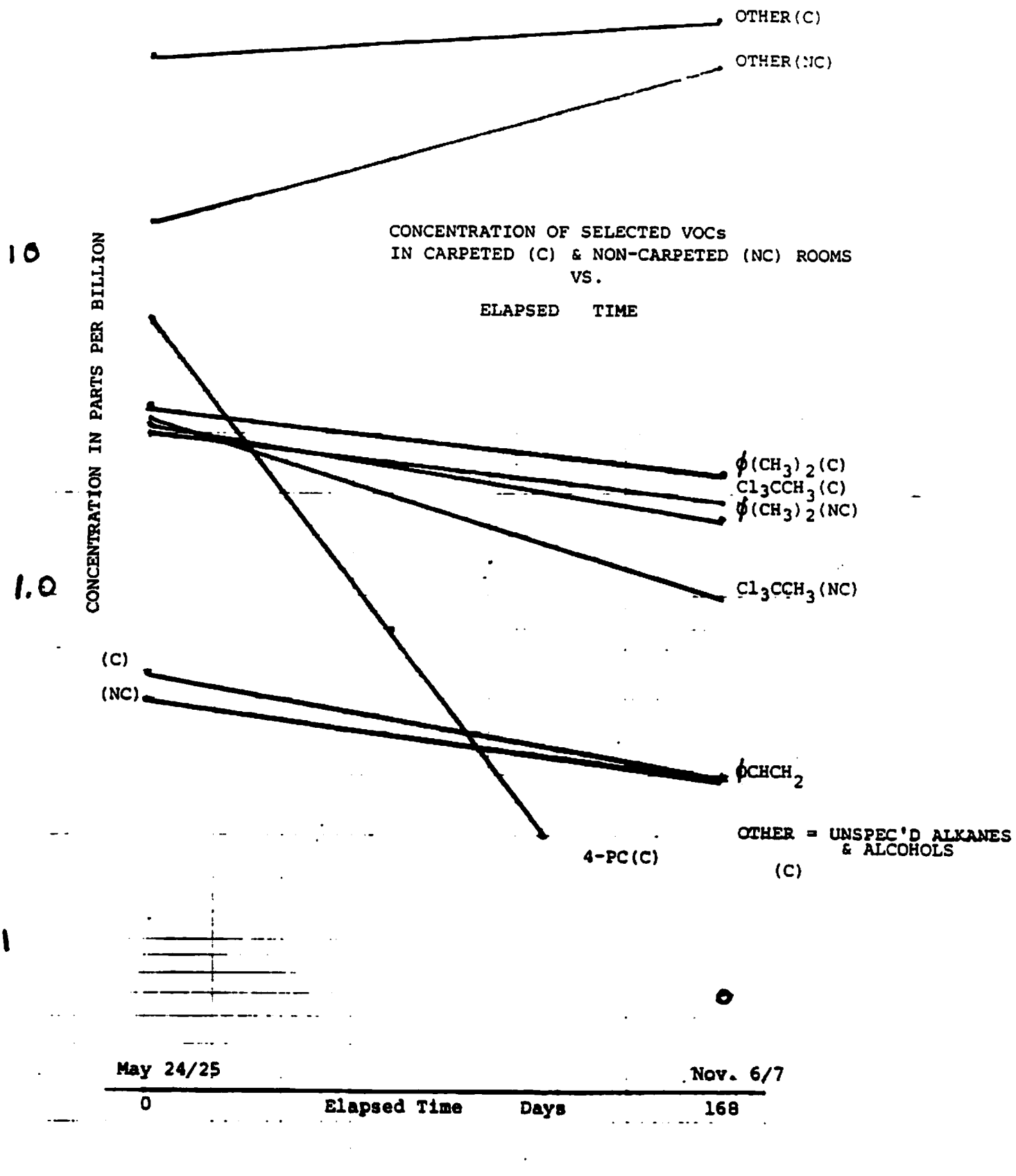
"Employee complai formed the basis of th EPA management, ha

Conclusions:

The low ppb levels of organic compounds found in this study are the same as those found in the Waterside Mall, EPA offices indoor air in the previous EPA studies (1-3). The only compound that was found at different concentrations during the last ten month period was 4PC. In general 4PC decreased from 6.65 ppb (May 24, 88) to 0.12 ppb (November 6, 88). The results are listed in Table 2.

SINGHVI, TURPIN AND BURCHETTE (1989)

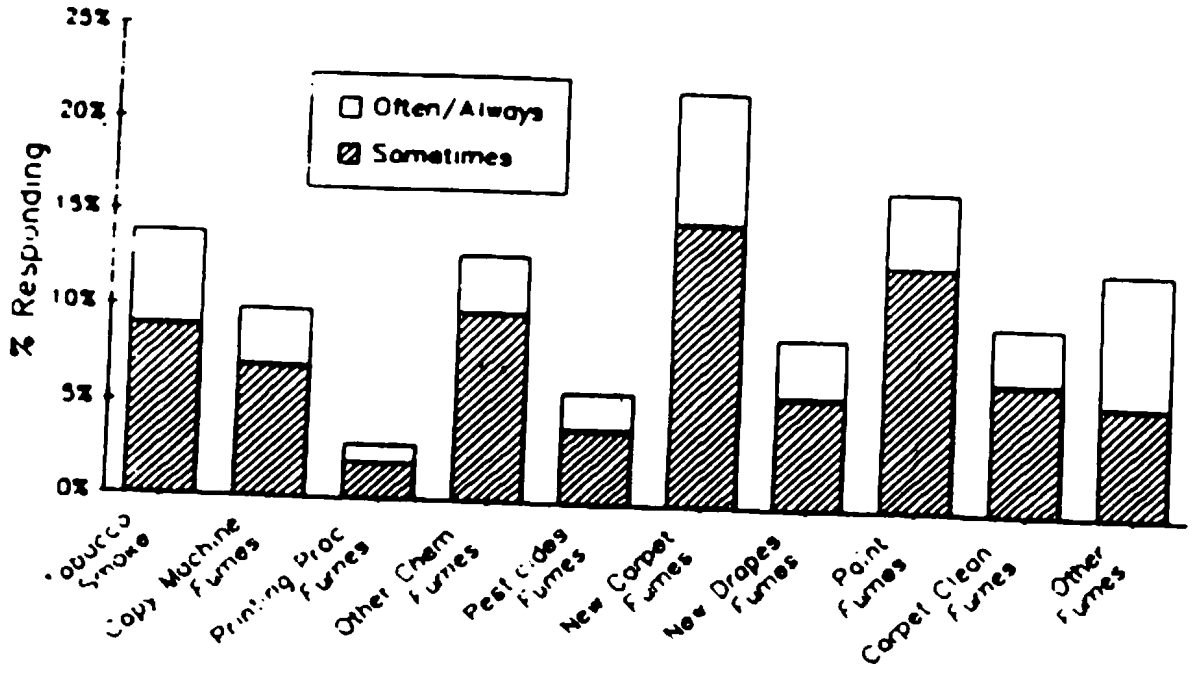

OTHER(C)
OTHER(NC)
CONCENTRATION OF VOCs IN SE-274
VS.
ELAPSED TIME
10
1.0
0.1
Concentration in Parts per Billion
CH_2Cl_2
ϕCH_3
$\phi(CH_3)_2$
CCl_3CH_3
ϕH
CCl_2CCl_2
$\phi CHCH_2$
$ClCH_2CH_2Cl$
$CHClCCl_2$
May 24/25
Nov. 6/7
0
Elapsed Time Days
168


OTHER(C)
OTHER(NC)
CONCENTRATION OF SELECTED VOCs
IN CARPETED (C) & NON-CARPETED (NC) ROOMS
VS.
ELAPSED TIME
10
1.0
0.1
CONCENTRATION IN PARTS PER BILLION
$\phi(CH_3)_2$(C)
Cl_3CCH_3(C)
$\phi(CH_3)_2$(NC)
Cl_3CCH_3(NC)
(C)
(NC)
$\phi CHCH_2$
4-PC(C)
OTHER = UNSPEC'D ALKANES & ALCOHOLS (C)
May 24/25
Nov. 6/7
0
Elapsed Time
Days
168

Reactions and Allergies. Many respondents reported chronic or recurring symptoms that they related to allergic reactions to biological contaminants (e.g., dust, mold, pollen, dust mites, roaches), cigarette smoke, marking pens, pesticides, paper (>1 year old), paint, new upholstery, foam products, perfume, hairsprays, and hand lotions. The types of symptoms reported varied from hay fever, sinus congestion, and asthma attacks to fatigue and swollen lymph nodes. In addition, many employees reported acute reactions (e.g., headaches, dizziness, burning eyes) to specific renovation activities, particularly the installation of carpets or moving into offices with new carpets or partitions.

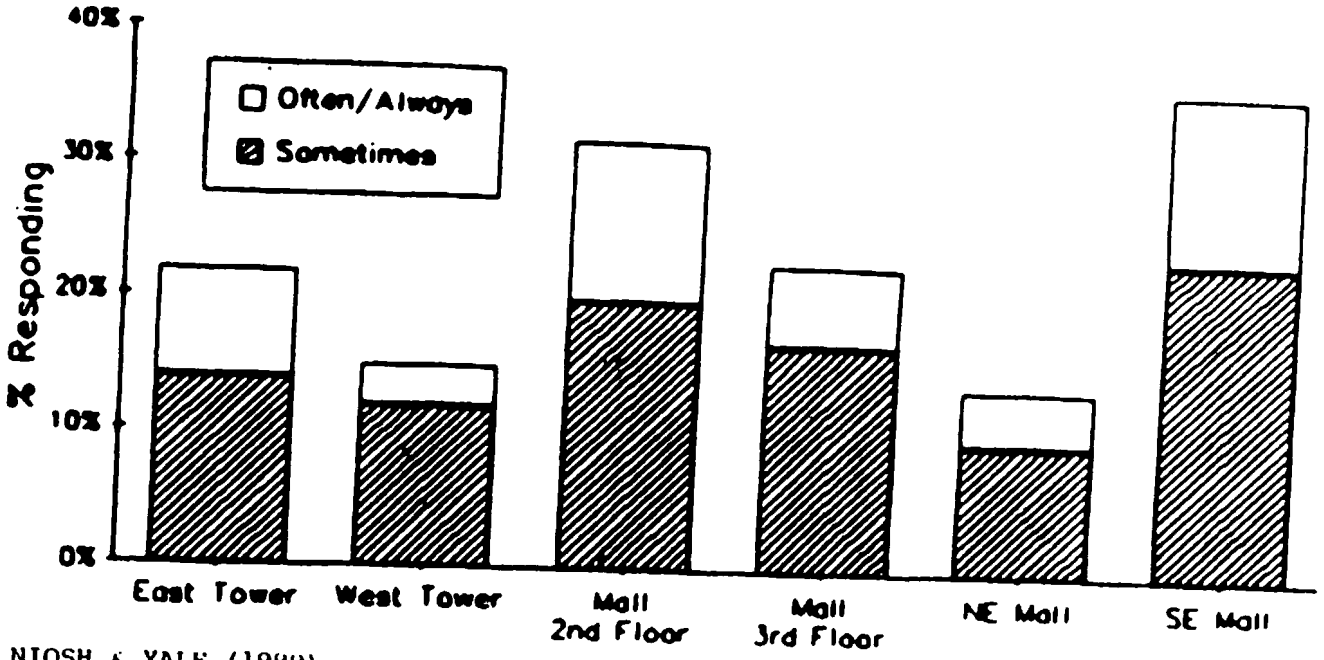
EPA,NIOSH & YALE (1989) P. 5-46

Exhibit 5-13a: Percent of Responding Employees Attributing Eye, Nose, Throat or Respiratory Irritation to Various Causes at Workstation Last Year -- WATERSIDE MALL



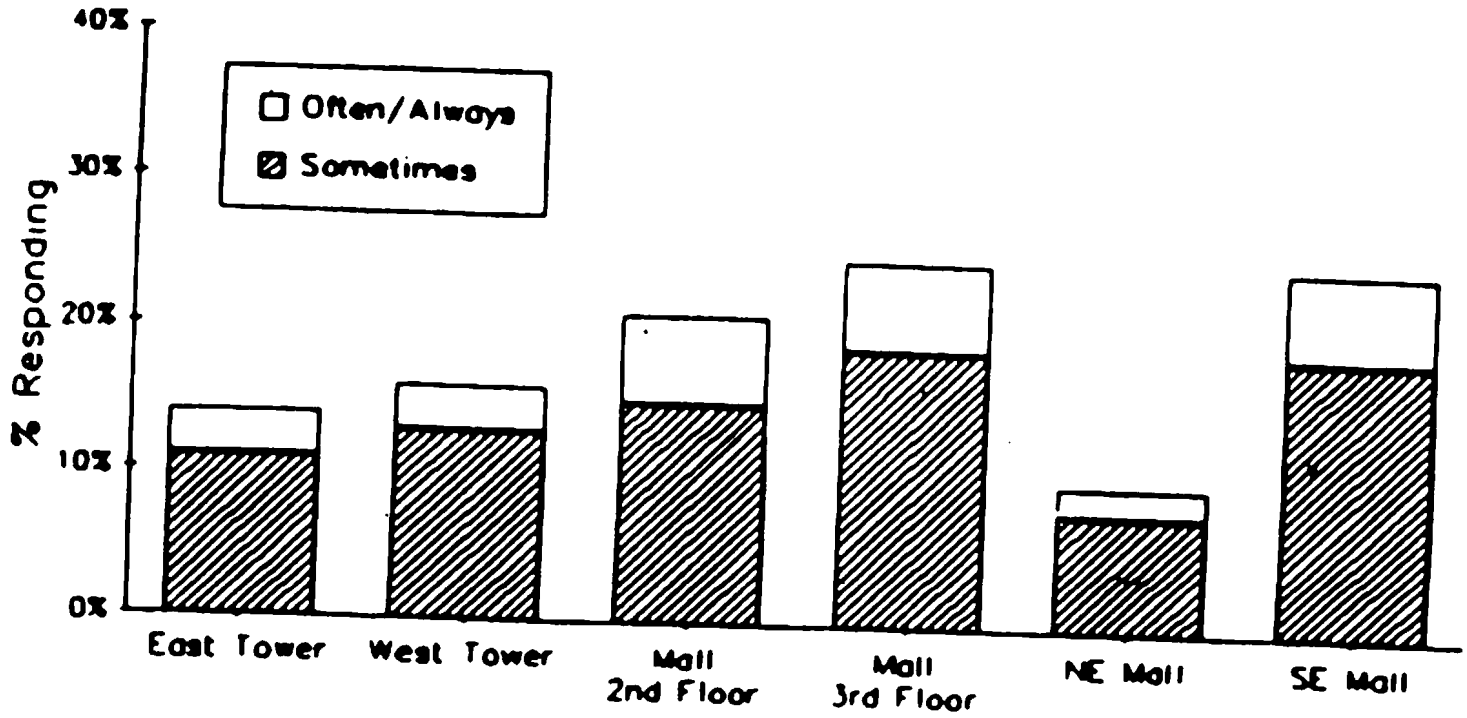
EPA, NIOSH & YALE (1989)

Exhibit 5-14a: Percent of Responding Employees Attributing Eye, Nose or Throat Irritation to New Carpet Last Year, by Waterside Mall Sector



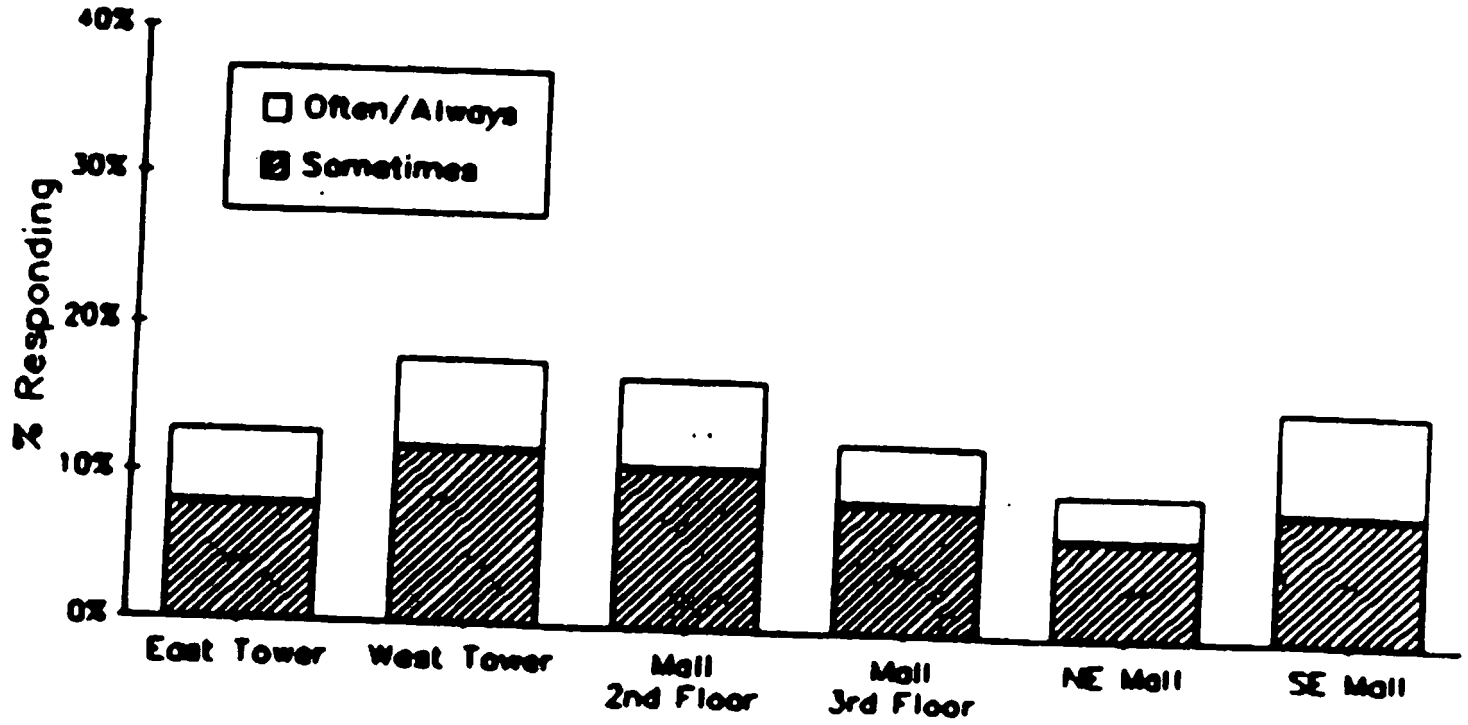
EPA, NIOSH & YALE (1989)

Exhibit 5-14b: Percent of Responding Employees Attributing Eye, Nose or Throat Irritation to Paint Last Year, by Waterside Mall Sector



EPA, NIOSH & YALE (1989)

Exhibit 5-14c: Percent of Responding Employees Attributing Eye, Nose or Throat Irritation to Tobacco Smoke Last Year, by Waterside Mall Sector



EPA, NIOSH & YALE (1989)

Exhibit C-11a

Number and Percent of Responding Employees Attributing
Eye, Nose, Throat or Respiratory Irritation to Various Causes
at Workstation, Last Year, Waterside Mall

	Never		Rarely		Sometimes		Often		Always		Total Irritate	
	# Resp.	% Resp	# Resp.	% Resp.	# Resp.	% Resp	# Resp.	% Resp	# Resp.	% Resp.	# Resp.	% Re
Tobacco Smoke	2,146	71%	433	14%	281	9%	94	3%	61	2%	869	29
Fumes from Copy Machine	2,287	76%	438	15%	207	7%	46	2%	22	1%	713	24
Fumes from Printing Process	2,703	90%	209	7%	55	2%	18	1%	13	0%	295	10
Fumes from Other Chemicals	2,063	69%	549	18%	297	10%	65	2%	24	1%	935	31
Fumes from Pesticides	2,431	82%	376	13%	127	4%	26	1%	19	1%	548	18
Fumes from New Carpeting	1,852	62%	490	16%	441	15%	152	5%	58	2%	1,141	38
Fumes from New Drapes	2,324	78%	394	13%	183	6%	62	2%	26	1%	665	22
Fumes from Paint	1,888	63%	591	20%	401	13%	84	3%	40	1%	1,116	37
Fumes from Cleaning of Carpets	2,242	75%	454	15%	209	7%	49	2%	21	1%	733	25
Other Fumes	1,880	85%	45	2%	139	6%	109	5%	48	2%	341	15

Resp. - Number of Employees Responding.
% Resp. - Percentage of Employees Responding.
Reference: Part II, question 19.

EPA, NIOSH & YALE (1989)

Exhibit C-11b

Number and Percent of Responding Employees Attributing Eye, Nose, Throat or Respiratory Irritation to Various Causes at Workstation, Last Year, Crystal Mall

	Never		Rarely		Sometimes		Often		Always		Total Irrita	
	# Resp	% Resp	# Resp	% Resp	# Resp	% Resp	# Resp	% Resp	# Resp	% Resp	# Resp	%
Tobacco Smoke	299	67%	80	18%	45	10%	13	3%	10	2%	148	
Fumes from Copy Machine	320	73%	69	16%	34	8%	12	3%	4	1%	119	
Fumes from Printing Process	395	91%	27	6%	7	2%	2	0%	2	0%	38	
Fumes from Other Chemicals	331	75%	71	16%	31	7%	5	1%	1	0%	108	
Fumes from Pesticides	362	83%	63	14%	9	2%	2	0%	1	0%	75	
Fumes from New Carpeting	339	78%	66	15%	22	5%	8	2%	2	0%	98	
Fumes from New Drapes	375	86%	47	11%	10	2%	3	1%	1	0%	61	
Fumes from Paint	276	62%	95	21%	57	13%	7	2%	7	2%	166	
Fumes from Cleaning of Carpets	343	79%	70	16%	14	3%	4	1%	3	1%	91	
Other Fumes	314	86%	7	2%	12	3%	20	5%	12	3%	51	

Resp. - Number of Employees Responding.
% Resp. - Percentage of Employees Responding.
Reference: Part II, question 19.

EPA, NIOSH & YALE (1989)

ABSTRACT

The purpose of the research was to investigate the cause(s) of eye and upper respiratory irritation associated with the installation of new carpeting. Preliminary analysis of two headspace and one solvent extracted samples by gas chromatography-mass spectroscopy revealed the presence of one compound, namely 1-phenyl-3-cyclohexene, common to all three carpet samples.

New carpeting has also been found to periodically contribute to indoor pollution problems. In this regard, the Arizona Center for Occupational Safety and Health, the Arizona Division of Occupational Safety and Health, the Poison Control Center at the University of Arizona and the Pima County Division of Public Health have received numerous complaints from homeowners and businesses with respect to indoor pollution resulting from newly installed carpeting.

[1] KAHN, VAN ERT AND CARTER (1984) P. 1

Symptoms reported by affected individuals include eye, nose and throat irritation, headache, sinus irritation, and fatigue. In certain cases, individuals are unable to inhabit their homes until the new carpeting is removed. In other cases, individuals failing to recognize carpeting as the contaminant source, have suffered repeated respiratory problems until their carpeting was identified as the contaminant source.

CRABB, VAN ERT AND CARTER (1984) PP. 1 & 2

It is the objective to determine the material being emitted from certain carpet samples on the assumption that one or more may be associated with symptoms of ill-health.

To date, there are many types of carpeting on the market. This study will focus on one of the most popular of the carpet types in use today; a short loop or tuft is woven through a mesh and a secondary backing is then applied using bonding materials to increase the structural stability and rigidity of the carpet. It is this type of carpet that seems to have generated most of the complaints received by the public health agencies.

Phenyl-3-cyclohexene was identified as the largest of the contaminunt peaks in each of the four samples, and was the only contaminant (above trace amounts) identified in two of the samples. The other two samples did not have similar compositions, as indicated by retention time comparisons. This confirms that the peaks quantified in the two previous sections are indeed phenyl-3-cyclohexene. The presence of this substance in sample 1 (figures 7 a & b, 8 a & b) indicates that 1-phenyl-3-cyclohexene originated from the latex used to adhere the secondary backing to the carpet face.