National Federation of Federal Employees

Local 2050

JAN 11 1990

Hon. William K. Reilly, Administrator
U.S. Environmental Protection Agency
Washington, D.C. 20460

Dear Mr. Reilly:

With the submission of this letter Local 2050, National Federation of Federal Employees simultaneously withdraws the Toxic Substances Control Act section 21 petition dated December 4, 1989 and enters the attached petition as a replacement. We do this in order to honor an agreement with the Office of Toxic Substances relating to that Office's special needs in reviewing the petition.

I attach a memo to File containing information relevant to the petition received by the Union recently.

Sincerely yours,

J. William Kerzy, acting for

Robert J. Carton, Ph.D.
President

attachment

cc: Charles L. Elkins

MEMORANDUM

Subject: Carpet Complaints

From: J. William Hirzy, President-Elect
National Federation of Federal Employees Local 2050

To: File

This is to record to telephone conversations of January 5 and 6, 1990, with Mr. Don Beacock and Mrs. Xandria Amara, respectively.

Beacock: He runs Seadrift Realty Co., 2 Dipsea Rd., Stimson Beach CA. 94970, 415-868-1791. He recently installed new carpet in a 1000 square ft. office housing ca. 30 employees, most of whom have become ill to some degree, one man having severe nausea (with bleeding) and central nervous system symptoms. Beacock reports that nearly all customers who enter the office complain of headache, dizziness and nausea. The carpet was manufactured by Tuf Tex (sic), a California firm, who deny their product is at fault. He obtained my name through the EPA Region IX Toxics office and called for help. I gave him the CPSC hotline number, explained its purpose and suggested he contact state health officials. I also referred him to a testing laboratory, and told him I believed he had a serious problem on his hands, and that induction of multiple chemical sensitivity was a potential hazard.

Amara: (209-297-8825) Mrs. Amara was referred to me by an immunologist. She and her husband bought a new home in which new carpet was installed 2/5/89; they moved in 2/6/89. She immediately began having central nervous symptoms, heart palpitation, cold sweats and facial tremors. Severe headaches, arthritic pains and speech impairment developed over the next 2 months. They began to sleep outdoors in April , and the carpet was removed in June. Her husband is also affected, but not so severely. The original carpet was made using Reichhold-manufactured styrene-butadiene latex adhesive. Replacement (wool) carpet was brought in in July, but, ignorant of the implications, she allowed glue to be used in the installation, and she was severely affected by that installation. She is under the care of Dr. Heuser, an allergist in Los Angeles (phone: 213-855-0548) who has been involved in other such cases and is writing a paper on them. She has been in touch with CPSC, and is willing to participate in a research program. Her present condition seems to fit a multiple chemical sensitivity pattern, and she has developed hypertension and kidney problems.

JAN 11 1990

CITIZEN'S PETITION

RE: Control of Risk Associated With Certain Carpeting

1. **Petitioner Information** This petition is filed by Local 2050, National Federation of Federal Employees under provisions of section 21 of the Toxic Substances Control Act (TSCA) and with guidance provided at Federal Register 50 46825-46828, November 13, 1985. Petitioner is a labor organization representing approximately 1100 professional employees of the Headquarters, U.S. Environmental Protection Agency (EPA), Washington, DC. The organization exists to further the interests of its members and to promote excellence in achieving the missions of EPA. Written inquiries of the petitioner may be sent to: Dr. J. William Hirzy President-Elect, c/o P.O. Box 76082, Washington DC, 20013. Dr. Hirzy may be reached by phone at 202-382-2383.

2. **Description of the Problem** Some of petitioner's members and their coworkers have been injured through exposure to toxic chemical substances emitted from carpet installed in their work place. Petitioner is aware of other citizens who have been similarly affected. These injuries range in severity from induction of multiple chemical sensitivity (MCS), a persistent, life-altering, debilitating condition, to irritation of the eyes and respiratory tract, headaches, dizziness and other effects. Those EPA employees in whom MCS has been induced are unable normally to enter their work place and to tolerate many other environments without suffering some or all of the latter effects, which petitioner characterizes as acute irritancy response (AIR).

Based on data which petitioner has obtained from the employer, health status reports of injured workers, reports received from other citizens, and the professional experience of members of Local 2050, petitioner seeks certain relief, defined in detail below, under sections 4, 6 and 8 of TSCA.

Carpet containing the chemical 4-phenylcyclohexene (4-PC), among other volatile substances, was installed at EPA Headquarters during the period October 1987 through April 1988, and reports of injuries began immediately following installation of that carpet. Petitioner is aware that from time to time, especially in

conjunction with laying of small amounts of carpet and other renovations in this work place, individual employees have reported adverse health effects associated with air quality in the subject facilities. But never before has there been a surge in the number and severity of injury reports like that associated with installation of the large amount (27,000 square yards) of this lot of carpeting.

4-PC is a by-product of the manufacture of one carpet constituent, poly-co-styrene-butadiene, used in latex form as an adhesive in building the carpet. The polymer latex is also used as such as an adhesive to secure carpeting to certain flooring and to secure some kinds of floor tiles as well. 4-PC has been identified in indoor air of rooms recently carpeted and has been associated with illnesses of people living or working in those newly carpeted spaces (Crabb, 1984; VanErt, 1987). 4-PC has been identified as the single common chemical emission product from carpets associated with illnesses (Crabbe, 1984). Petitioner is aware that citizens exposed only to styrene-butadiene (SB) latex adhesive containing 4-PC, and not to carpet, have reported the same sort of adverse effects as petitioners members report following exposure to carpet at EPA Headquarters (NFFE, 1989). Thus petitioner believes that 4-PC is at least a marker chemical for the toxic substance(s) involved in these injury reports, and that there is a reasonable basis to conclude that 4-PC is the specific toxic agent. Petitioner also believes that the mixture of other chemicals present in SB latex should not be discounted as potential synergists or co-toxicants in the effects that have been observed.

3. **Nature and Severity of the Harm from the Chemical(s) of Concern** Following installation of new carpet containing 4-PC and other chemicals at the Waterside Mall (WSM) complex at EPA Headquarters, at least 122 (NFFE, 1988) and probably as many as 880 (EPA, 1989) employees complained of air quality-and carpet chemical-related adverse effects. In seeking relief through this petition, petitioner divides the adverse health effects of which employees complained into two categories, induction of MCS and AIR, and seeks separate air quality-standard and product content-

standard relief for both categories of effect. The method used to compute the air quality-standards for protection against AIR and induction of MCS are discussed in NFFE/AFGE, 1989.

Narratives of the employees who contracted MCS, which form a major portion of the toxicity data in support of that portion of this petition, are also in NFFE/AFGE, 1989.

The MCS narratives were written by the affected employees and submitted as part of sworn testimony before the House of Representatives Committee on Science, Space and Technology, Subcommittee on Natural Resources, Agriculture Research and Environment and Public Works (Lively-Diebold, 1989).

Petitioner also reports analysis (NFFE/AFGE, 1989) of research findings on the in vitro effects of a close structural analogue of the suspected primary metabolite of 4-PC. These findings indicate that biological effects of 4-PC are likely to be significant with respect to the induction of MCS, in accord with current theories of MCS induction (Cullen, 1987; Thomson et al., 1985; Barnes, 1986; Barnes, 1986). Petitioner emphasizes, however, that the language of section 6 does not require complete understanding of the mechanism by which MCS (or AIR) operates in order to establish the need for the remedies sought for that condition (see below). Nevertheless, petitioner holds that the cause-effect relationship between exposure to new carpet and induction of MCS in EPA employees in the instant case is put on a reasonable basis by the data available, and that it therefore provides a reasonable and solely sufficient basis for regulatory action (see below).

Finally, petitioner submits exposure data showing the levels of 4-PC to which employees in whom MCS was induced and in whom AIR was expressed were exposed, and presents a computation of the air quality standard sought based on those exposure data.

4. **Petitioner's Theory of Causation/Remedy** Petitioner includes as members experts in the fields of toxicology and industrial chemical processing, among other professions. Petitioner's theory of causation, which forms the basis for the remedies sought, is based on consideration by these professionals of: 1) the data gathered by EPA on its own indoor air environment;

2) information developed by the research teams of Professor VanErt; 3) information received from the public relating experiences mimicking those of EPA WSM employees, and 4) EPA's methods for determining putatively safe levels of exposure to toxic substances.

4-PC is inadvertently produced by the Diels-Alder condensation of styrene and butadiene during the polymerization of these monomers to poly-co-styrene-butadiene, the desired reaction product. It is well known by organic chemists that the Diels-Alder reaction is influenced by many factors: reactants ratio, temperature, pressure, etc. In the case of this undesired Diels-Alder reaction, it is likely that reactor configuration, amount and type of polymerization catalyst, and possibly other factors also play a role in determining the extent of the side-reaction to form 4-PC (and some organic chemists will swear that the phase of the Moon sometimes plays a role as well). Purifying the polymer product of unreacted styrene and butadiene can also play a part in determining how much 4-PC remains in the final latex, and there are variables in this step of the process, too, that can shift and result in higher or lower levels of residual 4-PC. Proper control of the polymerization and purification steps, and proper analysis of the finished product can assure that latex put into commerce will not contain harmful levels of 4-PC, or other materials for which 4-PC may be a marker.

It is for this very reason, i.e. the variability of the processes involved and of quality control practices, that petitioner believes only limited amounts of "bad" SB latex have entered the market and resulted in injuries. These "bad" batches of latex result in "bad" runs of carpet, or "bad" cans of SB latex adhesive, while the largest portion of both types of product apparently cause no harm to healthy individuals. Coupled with what seems to be a limited number of people who are susceptible to induction of MCS (possibly determined by genetic factors), these small numbers of "bad" SB batches are responsible for the problems this petition is aimed at remedying.

Petitioner does not hold, based on evidence now available, that all cases of MCS are the result of exposure to 4-PC.

Petitioner believes that remedies under section 6's standard of "presents or will present unreasonable risk" are appropriate because the remedies are of low economic consequence compared with the life-altering effects of MCS induction. That is, maintenance of process control records and modification of processing conditions to meet air quality and product content standards are of very minimal expense. In this same regard, petitioner points out that section 6 does not require the Administrator to prove that 4-PC is the only cause of the injuries dealt with here nor to know the precise mechanism by which the adverse effects occur, but only requires that he find "that there is a reasonable basis to conclude that" (emphasis added) 4-PC is the causative agent for those effects. This view of the application of the Toxic Substances Control Act has been sustained in the courts in Chemical Manufacturers Association v. EPA, 859 F. 2d 977, 986 [D.C. Cir. 1988] and is further supported by the legislative history of the Toxic Substances Control Act. Petitioner believes that the evidence brought forward in this petition gives the Administrator a "reasonable basis" to draw the same conclusion that petitioner does regarding 4-PC's involvement with these injuries. Further, petitioner argues that in the face of existing evidence, the burden is upon the Administrator to show that petitioner's conclusions have no reasonable basis. Remedies under sections 4 and 8 are justified on both hazard and exposure grounds.

4. **Relief Requested** Section 4: Petitioner believes that the criteria set forth at section 4(a)(1)(A) and (B) are met by the chemicals emitted from certain carpet; in particular 4-PC meets these criteria. The chemicals (and 4-PC) are produced in large volume, and many citizens are exposed to them; injuries to petitioners members and other citizens are reasonably attributed to exposure to the chemicals (and 4-PC). Thus both the exposure-based and hazard-based testing thresholds of section 4 are met by the subject materials.

Petitioner requests that an epidemiology study be undertaken on a case-control basis of the human health effects of exposure to chemicals which are emitted from certain carpeting and SB latex.

As part of this epidemiology study, certain enzyme activity levels and immune system marker-chemical activity levels should be measured.

Petitioner does not request epidemiology studies for the purpose of determining whether the chemicals in question cause the adverse effects observed, particularly MCS, but for the purpose of determining how the effects, especially MCS, are caused and the extent to which these effects may be present in the general population, previously undetected and unaddressed. Further, these studies should shed light on similar adverse effects, and their mechanisms, which may be caused by other chemicals. In particular, the phenomenon of MCS is at issue in this regard.

Petitioner also requests that certain other studies be conducted. These include in vitro studies of the reactivity of 4-PC and its epoxide derivative with cellular proteins and genetic material (DNA) and like studies of the ability of 4-PC to affect certain enzyme levels in living cells. In these in vitro studies cyclohexene and epoxycyclohexane should be used as a control substances. In conjunction with the enzyme- and immune system activity measurements from the epidemiology studies, these in vitro tests should provide insight into the mechanism(s) and extent of observed adverse affects resulting from exposure to certain carpeting and SB latex. Petitioner is willing to consult with EPA on design of these studies.

Suitable model, whole animal studies related to these in vitro tests should also be performed. That is, the effect of 4-PC (and "off-gas" mixture chemicals) on enzyme levels, immune system marker-chemicals and neurotransmitter substances should be determined. The reason for these whole animal studies is to elucidate the mechanism(s) underlying: 1) the observed effects on humans from exposure to carpet; and 2) the phenomenon of MCS. As stated above, the importance of this line of testing is in determining the extent to which these phenomena may be occurring in the general population and the nature of the relationship, if any, between them.

Petitioner is aware of the intent of the Consumer Product

Safety Commission (CPSC) to conduct telephone interviews of people who claim injury from exposure to carpeting. The work planned by CPSC, while laudable as a beginning, is scarcely of sufficient depth or breadth to answer the questions posed by existing data that indicate SB latex- and carpet-related chemicals are injuring substantial numbers of citizens. For instance, little or no collection of carpet samples claimed to be causing injuries is planned by CPSC; no blood or other tissue samples from affected citizens will be collected; no control groups are involved, no data base development and analysis is planned, etc. Thus, petitioner seeks to have EPA devote resources, or cause chemical manufacturers and carpet manufacturers to devote resources, to the epidemiology study and related in vitro and whole animal studies outlined here.

Section 6. Petitioner requests that an immediately effective rule under subsections/paragraphs 6(a)(2)(A)(ii), 6(a)(4), 6(a)(5), and 6(a)(7)(A, B and C) be promulgated that would: limit the level of 4-PC in indoor air environments to less than 0.005 parts per billion (ppb) to protect against induction of MCS, or less than 0.017 ppb to protect against AIR; require SB manufacturers to conduct studies to determine the maximum level of 4-PC that can be present in their latex product in order to comply with the air quality-standards, whether the latex is used to build carpet or to serve as a glue for indoor use; limit the permissible level of 4-PC in SB latex to the levels determined in the above described testing; require SB manufacturers to make and retain process control records assuring compliance with the above standards; require SB manufacturers to give notice to the public of the risk of injury from exposure to 4-PC or the mixture containing it above the prescribed levels; and requires SB manufacturers to buy back carpet and or adhesive containing 4-PC above the prescribed levels.

Petitioner further requests that an immediately effective order under subsections/paragraphs 6(b)(2)(A and B) be promulgated that would: require SB manufacturers and carpet manufacturers to remedy quality control procedures so as to comply with the indoor air quality-standards; require SB manufacturers and carpet manufacturers to give notice to the public of the risk to health

from exposure to 4-PC at levels above the air quality-standards; and requires SB manufacturers and/or carpet manufacturers to buy back materials not in compliance with the standards set in this rulemaking.

Section 8. Petitioner requests that an immediately effective rule under subsection 8(a) be promulgated that would require SB manufacturers, processors and distributors to report the amounts of SB latex manufactured and its uses.

Petitioner requests that an immediately effective rule be promulgated under subsections/paragraphs 8(d)(1 and 2) and 8(c) that would: require SB manufacturers and carpet manufacturers to submit lists of any health and safety studies on 4-PC or the mixture containing 4-PC known to the manufacturer; require SB manufacturers and carpet manufacturers to submit copies of any such studies in their possession; and require SB manufacturers and carpet manufacturers to maintain and present for inspection any records of allegations of adverse health effects related to exposure to 4-PC or the mixture containing it.

Petitioner also requests that a Chemical Advisory on exposure to volatile chemicals in carpeting, particularly 4-PC, be developed and issued by the Office of Toxic Substances. The content of this Advisory should include warnings about the hazard to people with MCS of exposure to carpet containing these chemicals at any level, this warning aimed at public building managers.

These remedies will: prevent induction of MCS in those people who are or may be predisposed to developing the condition; establish what levels of 4-PC can be tolerated in latex (a product-content standard) so as to comply with the air quality standard; insure that product-content standard levels of 4-PC will be achieved and no product will be distributed in commerce that does not comply with the product-content standard; rectify the losses incurred for purchase of carpet or SB latex that does not comply with the standards; provide a data base for assessing the extent to which the public is and has been complaining to carpet, glue or SB latex manufacturers about the issues covered by the petition; discover if any other uses of SB latex exist which may provide

exposure routes needing regulation; discover if any heretofore unknown health and safety studies exist on this problem; warn the public about the hazards of exposure to 4-PC and the chemicals which presently accompany it; and warn public building managers of the possibility of injuring people with MCS via exposure to those chemicals.

Petitioner is unable at this time to recommend an air quality-standard for 4-PC (or any other chemical) that would adequately protect people with MCS from harm from exposure to that substance.

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9. NFFE/AFGE. Indoor Air Quality and Work Environment Study: Supplement to Volume 1: Additional Employee Adverse Health Effects Information, November 20, 1989.

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