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W. A. K.
JUL 24 1974

TELEPHONE
202 296-2700
CABLE ADDRESS "KELMAN"

July 22, 1974

TO: All Members of:

SPI Food, Drug and Cosmetic
Packaging Materials Committee;
General Polyvinyl Chloride Interest
Mailing List;
Ad Hoc Liquor Bottle Committee;
Plastic Pipe Institute
(Executive Board);
Plastic Bottle Division
(Voting Representatives);
SPI Executive Committee;
SPI Public Affairs Committee;
VC and PVC Producers Committee

Ladies and Gentlemen:

In line with our continuing policy, the purpose of this letter is to provide information regarding the continuing governmental and related activities pertaining to vinyl chloride and polyvinyl chloride. As has been true for some time, most of what we have to report concerns the proposed standard for vinyl chloride exposure published by the Occupational Safety and Health Administration (OSHA) with only minimal updating on the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) fronts.

With respect to follow-up on the OSHA hearings we have a number of items to report. Firstly, on the originally announced closing date of July 17, 1974, we filed Comments on OSHA's draft Environmental Impact Statement on behalf of SPI. We are herewith enclosing a copy of the Comments. At the time the Comments were hand-delivered to the Office of Standards Development we were notified for the first time that the deadline for filing Comments was being extended until August 5, 1974. We are enclosing a copy of the extension notice which was

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given to us; those of you who may have wished to file your own Comments but were unable to do so before July 17, may find the additional fifteen days useful for that purpose.

As we previously advised you, during the course of the Hearings the American Chemical Society (ACS) presented a statement in support of the proposed standard. A number of ACS members in the audience took serious exception to the statement, pointing out that there was little or no industry representation on the ACS panel that prepared the statement and that the ACS did not consider any of the human health experience that was presented during the course of the hearings. Dr. A. B. Steele of Union Carbide Corporation has now written a letter to the American Chemical Society objecting strongly and cogently to the Society's statement; we are enclosing a copy of Dr. Steele's letter herewith.

In connection with this same statement filed by ACS we have been informed that the ACS Safety Committee contained only two chemists currently employed and knowledgeable in the VC/PVC industry. Still further, these industry chemists apparently received only a preliminary draft of the ACS statement, one which was substantively at variance with the statement that was finally issued. We understand that pertinent information regarding the make-up of this ACS Committee and the development of the statement is being prepared for submission to OSHA so we will report further to you as this matter develops.

Last week a meeting of the Steering Committee of the VC and PVC Producers Committee was held to make plans regarding post-hearing activities. Of most significance was the appointment of a Monitoring Methods Standards Sub-committee to develop detailed standards and procedures for monitoring VC and PVC plants in line with the SPI recommendations to OSHA. In addition a post-hearing brief will be drafted summarizing the evidence presented at the Hearing, providing such additional data as may have been developed since that time, and summarizing SPI recommendations. A draft of this brief will be presented to the full VC and PVC

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Producers Committee for its recommendations and approval. Thereafter, we plan to deliver the final version of the brief to OSHA on August 23, the last day that the Hearing record will be held open for this purpose.

To round out this letter we are including an article from Chemical and Engineering News dated July 22, summarizing the Hearings, and two related newspaper articles -- one from the Washington Post on July 20, and one from the New York Times on July 21. We believe these are important not for the new facts or information that they convey but rather because of their possible effect on the climate in which the final Regulation will be prepared.

With respect to FDA activity there are two items to report. The first concerns the long anticipated proposed interim regulation of polyvinyl chloride resins. It is our present understanding that a new version of the proposed regulation has been prepared and is being circulated through the Food and Drug Administration. It is our understanding that the current draft contains no substantive changes from the position previously reported -- that is, no detectable vinyl chloride migrating to food-simulating solvents using an analytical procedure sensitive to 50 parts per billion, combined with the requirement that there be no residual monomer in the polyvinyl chloride food contact surface in excess of ten parts per million.

The second FDA item concerns a request received from the Food and Drug Administration. You will recall that the Food and Drug Administration had requested information from manufacturers regarding the residual monomer concentrations in PVC packaging materials and results of migration studies into foods and food simulating solvents. Quite a number of the companies that responded indicated to the Food and Drug Administration that "work was continuing". We have now been requested by the Food and Drug Administration to ask those of you who informed the Food and Drug Administration that work was continuing to please supply updates as soon as you reasonably can. Basically, here, the Food and Drug Administration wants to be assured that it knows as much as it can about the possible migration of vinyl chloride to food.

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With respect to EPA activities, the Task Force report is still in preparation. Based upon our current contact with EPA it would appear reasonable to expect that the Task Force report will be presented to the Administrator near the beginning of September, after which, policy decisions by EPA can be anticipated.

We do hope these regular letters are effective in keeping you informed regarding the various aspects of the plastics industry's most severe current crisis. Certainly we shall continue to keep you as fully and promptly informed as we can.

Cordially yours,

A handwritten signature in cursive script, reading "Thomas H. Wickman". The signature is written in dark ink and is positioned below the typed name "Thomas H. Wickman".

Enclosures

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July 17, 1974

Mr. David R. Bell
Office of Standards Development
Occupational Safety and
Health Administration
U.S. Department of Labor
Room 500
1726 M Street, N.W.
Washington, D. C. 20210

Re: Draft Environmental Impact
Statement on Proposed Action
to Limit Exposure of Workers
to Vinyl Chloride

Dear Mr. Bell:

Responsive to Assistant Secretary John H. Stender's
June 17, 1974 "Memorandum for Recipients of the Draft En-
vironmental Impact Statement on Proposed Regulation--Vinyl
Chloride", the following Comments are hereby submitted to
the Office of Standards Development of the Occupational
Safety and Health Administration (OSHA) on behalf of our
client, The Society of the Plastics Industry, Inc. (SPI)
and its Vinyl Chloride and Polyvinyl Chloride Resin Pro-
ducers Committee. 1/

1/ The Society of the Plastics Industry, Inc. (SPI) is a
Corporation organized under the Not-For-Profit Corporation
Law of the State of New York. It is composed of approxi-
mately 1400 member companies and individuals who supply
raw materials; process or manufacture plastics or plastics
products, engineer or construct molds or similar accessory
equipment for the plastics industry; and engage in the
manufacture of machinery used to make plastics products or
materials of all types. SPI is the major national trade
association of the plastics industry, its membership being
responsible for an estimated 75% of the total dollar volume
of sales of plastics in this country. A more complete (cont'd)

ASI-PR 0002539

It should be noted at the outset that the following Comments are being submitted for your consideration with full recognition of the fact that Dr. Daniel P. Boyd, Director of the Office of Standards Development, clearly stated on the record at the recent OSHA Hearings on the proposed permanent standard for occupational exposure to vinyl chloride that, to the extent any interested party testified regarding the proposed permanent standard, such testimony will be considered as that party's comments on the Draft Environmental Impact Statement referenced above. ^{2/} In light of Dr. Boyd's statement, in the following paragraphs we have simply summarized the basic SPI positions on the proposed standard and are requesting that the views expressed be considered along with the entire record as a statement of SPI's Comments on the Draft Environmental Impact Statement.

I. STATEMENT OF POSITION

1. The positions of the Society and the members of its Vinyl Chloride and Polyvinyl Chloride Resin Producers Committee on the technological feasibility and economic impact issues relative to the proposed standard were presented in depth at the recently concluded OSHA Hearings, and, in our view, stand generally uncontroverted by factual evidence. We respectfully submit that a "no detectable" level of vinyl chloride in the workplace is (a) infeasible, (b) unwarranted, and (c) therefore, beyond the intent and scope of the Occupational Safety and Health Act and the case law developed to date.

2. More specifically, SPI and many other parties participating in the referenced Hearing repeatedly provided hard data showing that the proposed "no detectable" level of vinyl chloride is technologically infeasible to

1/ (cont'd) discussion of the interest of the Society in this entire matter is set forth in the Occupational Safety and Health Administration Hearings, In the Matter Of: PROPOSED PERMANENT STANDARD FOR OCCUPATIONAL EXPOSURE TO VINYL CHLORIDE, Transcript at 330 et seq., June 26, 1974. (Hereinafter cited as: Transcript at _____, (date)).

2/ Transcript at 1110, 1111, July 8, 1974.

achieve because the vinyl chloride monomer and polyvinyl chloride producers, in the present state of the art, cannot completely eliminate vinyl chloride exposure in their manufacturing operations. This most vital element of the Society's position was not countered by even a scintilla of evidence showing that a "no detectable" exposure limitation is technologically feasible. Furthermore, no evidence was adduced at the Hearings that would controvert the Society's position that the imposition of an infeasible exposure level would result in a shut-down of the vinyl chloride and polyvinyl chloride industries.

3. It is also SPI's position with respect to the proposed standard that the medical and scientific evidence alleged as the basis for proposing the complete insulation of the work force from minimal vinyl chloride exposure is not sufficient to warrant the conclusion that more reasonable exposure limitations would cause an undue hazard to employees. The Society's view is that the toxicity of vinyl chloride does justify limiting exposure levels but that the industry's alternative proposals to a "non-detectable" level give reasonable assurance that any hazard will be reasonably delimited and that employees will be protected from exposure to dangerous levels of vinyl chloride in the breathing zone.

4. Furthermore, medical experts testifying on behalf of the Society and others urged that the human experience data assembled is entitled, on toxicological grounds, to far greater weight than the inconclusive animal test data presented. Additionally, the human experience data justifies those exposure limitations which the industry considers feasible now and in the future. Considering all the testimony given at the Hearings, it is submitted that the tenor of the composite medical opinion was that the human experience data indicates that human toxicity problems associated with vinyl chloride stem from a time period when occupational exposure to vinyl chloride was at a considerably higher level than currently exists under the Emergency Temporary Standard.

II. COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

5. OSHA's Draft Environmental Impact Statement is premised on the finalization of the current proposal without

change, the conclusion that the proposed standard is technologically feasible, and a presumption that the animal toxicology data mitigates against human exposure at levels above "non-detectable". SPI takes exception to these general propositions and urges that they be revised in the final Environmental Impact Statement insofar as evidence adduced during the Hearing and otherwise contained in the record illustrates that these premises are invalid.

6. With regard to the outline of the proposed standard at Pages 53-60 in the Draft Environmental Impact Statement, the Society's specific comments on the details of the proposed standard are a matter of record and can be found in the transcript of the Hearing. 3/

7. The Society, herein addressing the Draft Environmental Impact Statement rather than the proposed standard, takes strong exception, as enumerated below, to the sections in the Draft Environmental Impact Statement dealing with: "VI. Probable Impact of the Proposed Standard" at Pages 60-65 and "VIII. Alternatives" at Pages 73-75.

8. The Probable Impact section begins with the conclusion that adoption of the proposed standard will result in a workplace free of vinyl chloride exposure and result in less vinyl chloride escaping into the ambient air. It is stated also that compliance costs will threaten marginal firms, raise the price for PVC, and encourage the substitution of other materials but that high reliance on PVC will reduce demand elasticity despite these price changes. The Draft likewise postulates that other costs associated with compliance are deemed capable of internalization.

9. While understanding that the Draft Environmental Impact Statement was prepared prior to the conduct of the above-referenced Hearings and that the evidence adduced at those Hearings consolidated considerable background and expertise upon which OSHA's ultimate decision will be reached, the Society is compelled to note that, in its view, the Draft Statement itself offers no documentation

3/ Transcript at 300-685, June 26-27, 1974 (and elsewhere throughout the record).

or supporting evidence for the conclusions reached. In fact, it is respectfully submitted that the evidence gathered through the hearing process just completed indicates that it is technologically infeasible to achieve the proposed "no detectable" level of exposure in the workplace, that this technological infeasibility is not primarily economically related, and that substitutes for PVC are not in adequate supply. 4/

10. At Page 62 in the Draft Statement it is indicated that the proposed standard favors engineering and work practice methods that would reduce the exposure level and, at Page 64 and elsewhere, it is indicated that these engineering and work practice methods should include improved ventilation, air filtration, and housekeeping. Testimony at the Hearing indicates that engineering and work practice methods could reduce but not eliminate exposure to vinyl chloride in the workplace. It is submitted that the record is replete with information on these points and that such should be reviewed in great detail prior to the finalization of this Statement so that the environmental analysis will be based on a more accurate assessment of the state of the technology.

11. On the same page the Draft addresses supply problems, specifically with regard to personal protective equipment, that should be expected to occur with the implementation of a regulation such as is now proposed. Supply shortages, and lead-time for ordering and installing various types of equipment to reduce vinyl chloride concentrations in the workplace were addressed at length throughout the course of the Hearings. SPI submits that, since indications were that order placement and installation lead-time are currently running in excess of 20 months, this factor must be addressed in more detail in the final Statement.

12. Again on Page 62, the Draft states that preliminary assessments of the cost of compliance indicate that the expenditures to achieve such compliance will not be prohibitive. Without addressing the economics involved in detail here, reference should again be made to the statements in the record concerning ability to comply

4/ Transcript at 350 et seq., June 26, 1974 and at 455 et seq., June 26, 1974.

with the proposed standard; the testimony simply does not support the conclusion that economic consequences may not be prohibitive. Moreover, review of the Draft does not indicate that the preliminary assessment of cost of compliance is supported by the data in Appendix C. This Appendix indicates, at Page 6, that control technology is available, and in some cases installed, for limiting vinyl chloride exposure. However, we have found nothing in Appendix C to indicate that technology which would eliminate exposure to vinyl chloride is either available or installed.

13. We hasten to emphasize this point because, on Page 63 of the Draft, it is stated that since the technology appears to be readily available and existing practices already result in low exposure levels, some hazardous function operations, housecleaning and maintenance improvements required notwithstanding, the conclusion is that substantial development costs for vinyl chloride control technology will not be incurred. Continuing on the same page, there is a statement that no evidence exists to date indicating that the promulgation of the proposed standard will stop vinyl chloride production and use. Again, Appendix C does not support this conclusion and the evidence now in the hearing record as a minimum tends to controvert it almost completely. As a conclusion, its only support seems to stem from the statement on Page 64 indicating that PVC-reliant customers can be expected to sustain the industry despite the increased costs of polyvinyl chloride end products.

14. However, as pointed out above, industry members repeatedly pointed out during the course of the Hearings that the technology required to achieve a "no detectable" level of occupational exposure to vinyl chloride simply does not exist. Consequently, it is respectfully submitted that the final Statement should address the question of available technology in depth and in a more realistic light. Since compliance with the proposed standard would be absolutely predicated upon the existence of technical know-how, SPI submits that it is essential that the final Statement address and resolve these questions and the probable effects of such a standard on an industry unable to achieve compliance.

15. Turning now to the treatment of "Alternatives" at Pages 73 through 75, the options OSHA sees available

could be simply restated as (1) a ban on vinyl chloride production, (2) adoption of the current proposal, (3) retention of the Emergency Temporary Standard, (4) complete reliance on personal protective equipment and (5) an occupational exposure limitation somewhere between 1 and 50 parts per million (ppm).

16. The first alternative, a ban on polyvinyl chloride production, is not, it is submitted, a viable alternative because (1) such action would be contrary to the public interest as a matter of common sense, and (2) the Occupational Safety and Health Act does not contemplate elimination of any industry. It is, therefore, urgently submitted that, since legal authority for such an action is lacking, further consideration of a ban as an alternative is inappropriate.

17. Insofar as the second alternative deals with the instant proposal, the comments in the preceding paragraphs hereof on Probable Impact are wholly applicable and indicate the inaptness of this approach.

18. Alternative number 3, retention of the current 50 ppm exposure level specified by the Emergency Temporary Standard, is stated, on Page 73, to have been rejected as inadequate because animal tests "indicate that exposure to vinyl chloride at 50 ppm may well constitute a serious health hazard to employees." This statement implies that the conclusion is justified not only by animal toxicity studies but that such animal experience can be directly extrapolated to human experience.

19. It is respectfully suggested that this conclusion is no longer supported by the available evidence. During the referenced Hearings, considerable new evidence, interpretations and further reports on animal studies being conducted and their relationship to human experience were introduced into the record. It is the SPI position that in addition to the ongoing animal studies being conducted, some of which were referenced in the Draft Environmental Impact Statement, careful attention in the final Statement must be directed to the human experience data presented 5/ and the new toxicological research studies reported. 6/.

5/ See, e.g., Transcript at 500, et seq., June 26, 1974.

6/ See, e.g., Transcript at 955, et seq., June 28, 1974.

20. At Page 74, the last alternative offered in the draft Statement refers to the "judgemental" [sic] selection of an exposure level between 1 and 50 ppm. Such an alternative is stated to be viable only assuming that disease in man from vinyl chloride exposure is dose related and low levels are not hazardous to man.

21. Since this is precisely the essence of the medical and scientific evidence given in the Hearings, it is respectfully submitted that such evidence, entered into the record subsequent to the time when the Draft Environmental Impact Statement was prepared, should be thoroughly reviewed and given great weight prior to preparation of the final Statement. It is our view that the medical and scientific data specifically indicate a dose related response and that industry will do everything feasible to reduce the dose/exposure levels of vinyl chloride. This "Alternative," therefore, appears a feasible one, as does alternative three.

22. Finally, Appendix C, the Industrial Hygiene Survey Report on Vinyl Chloride and Polyvinyl Chloride Manufacturing Facilities, states, at Page 6, that vinyl chloride control technology is available and installed in some cases but that a reasonable time should be allowed for implementation of further engineering control methods such as local exhaust ventilation systems. It is important to note that this report does not and should not state or be interpreted to imply that the VCM exposure control technology currently available and implemented by the industry is capable of eliminating vinyl chloride exposure or making it possible for producers and manufacturers to reach a "no detectable" exposure level in the foreseeable future.

* * *

THESE PREMISES CONSIDERED, it is respectfully submitted that the Draft Environmental Impact Statement should be revised extensively so that the final Statement more completely and accurately addresses all of the issues as they have now been more fully developed. It is the

Society's view that unless the draft is so changed, the final Environmental Impact Statement may well lack the balance and objectivity required by the National Environmental Policy Act.

Respectfully submitted,

THE SOCIETY OF THE PLASTICS
INDUSTRY, INC.

By 
Jerome H. Heckman

General Counsel for
The Society of the Plastics
Industry, Inc.

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration
WASHINGTON, D.C. 20210



MEMORANDUM FOR RECIPIENTS OF THE DRAFT ENVIRONMENTAL
IMPACT STATEMENT ON PROPOSED REGULATION -
VINYL CHLORIDE

This is to inform you that the final date for submission of comments on the draft environmental impact statement on vinyl chloride, previously announced as July 17, 1974, has been extended to August 5, 1974. The increased time period for public comment allows 45 days from the Council on Environmental Quality's notice of receipt of the draft document in the Federal Register.

Comments should be sent to David R. Bell, Office of Standards Development, Room 500, 1726 M Street, N.W., Washington, D.C. 20210, by August 5, 1974 to assure their consideration.

Any inconvenience caused by the change in comment dates is regretted.

A handwritten signature in cursive script, reading "Daniel P. Boyd", is positioned above the typed name and title.

Daniel P. Boyd, Ph.D.
Director
Office of Standards Development

ASI-PR 0002548

Conflicting views on vinyl chloride coalesce

Industry decries OSHA's no-detectable level rule as unnecessarily harsh; both labor and ACS support proposed standard

Mere mentioning of the words vinyl chloride to Occupational Safety and Health Administration officials who presided over public hearings on the agency's proposed permanent workplace standard for the chemical may well lead to mutterings that enough is enough. In nine days, the officials listened to 35 hours of direct testimony by 44 panels of witnesses—and many additional hours in question and answer sessions—and received 89 written submissions for the hearing record. Much of the data presented OSHA is conflicting. All this is of little comfort to the officials as OSHA has until Oct. 5 to come up with its final version of a permanent standard.

It's likely that OSHA may well pick some middle ground standard—tougher than that proposed by industry, softer than that initially proposed by the Government—which, if either labor or industry is unhappy about it, may well be challenged in the courts anyway.

Data presented at the hearings tended to coalesce, in effect, into two positions: that of industry and that of Government-labor-ACS. For instance, a spokesman for the Society of the Plastics Industry maintained that OSHA's proposed work-place standard—which, among other things, calls for a no-detectable level of vinyl chloride—"is not technologically feasible and, if adopted, would shut down the industry." In contrast, Peter Bommarito, president of the United Rubber Workers, said that the "OSHA proposal comes closer to the ideal standard than any yet proposed or promulgated for any workplace hazard."

However, Dr. Daniel P. Boyd, director of the office of standards development for OSHA, although emphasizing that the proposed standard is just that—a proposal—said that "it represents our best judgment based on the information available on May 10... our present judgment is that vinyl chloride is a carcinogenic agent." Dr. Boyd pointed out that in protecting employees from a carcinogenic material, "We are operating in the area of many unknowns.

For example, we do not know the mechanism by which a chemical carcinogen operates or whether a safe level of exposure can be set." Much of the testimony presented at the hearing dealt with industry's, labor's, and research workers' effort to resolve the latter question.

The initial impetus for the vinyl chloride industry came during World War II when it was used as a substitute for natural rubber. According to Dr. Irving J. Selikoff, professor of medicine at City University of New York's Mount Sinai School of Medicine, "This immediately points to a problem of current vinyl chloride-polyvinyl chloride investigations; the industry is a relatively young one, and the late effects of toxic exposure have only begun to appear; most of our experience is still ahead of us." He told the hearings that clinical field studies are being conducted that include examinations of more than 1200 vinyl chloride-PVC polymerization workers. Although all the results are not yet in, he reported that studies of 354 current and former workers at Goodyear's plant in Niagara Falls, N.Y., "demonstrated a significant prevalence of liver abnormalities, peripheral vascular changes, and lung abnormalities."

Information on deaths from two plants, one which produces monomer and the other polymer, was presented by Dr. John M. Peters of the Harvard School of Public Health. He said that studies on 161 deceased white males showed "a 50% excess of deaths due to cancer." There was a "60% excess of lung cancer (13 cases with 7.9 expected) and a 320% excess of brain cancer (five cases with 1.2 expected) with the

number of liver cancer cases being 10 times those expected in a similar unexposed population. He stressed that these studies, though preliminary, show that multiple cancer sites are involved and cancer is increasing over time in the population. Dr. Peters agreed with Dr. Selikoff in that he said, "I do not believe we will know the full cancer-causing potential of vinyl chloride for several years. At this point the only way to assure an end to this serious hazard is to eliminate the exposure."

The vinyl chloride-PVC industry, in general, took the opposite view. Harry E. Conners, vice president of Diamond Shamrock Chemical, told the hearings, "In our judgment the cases of worker illness recently discovered in industry are the delayed result of conditions that were common many years ago but are no longer present in today's plants." Dr. Richard W. McBurn, corporate medical director of Diamond Shamrock Chemical, pointed out that "during the early years of PVC production attention was given to vinyl chloride vapors only because of the anesthetic qualities and the explosion hazard. Since the explosion hazard occurs at upward of 30,000 p.p.m. and the anesthetic effect at 1000 to 5000 p.p.m. the vinyl chloride levels in work areas were undoubtedly quite high."

Dr. Carl U. Denehl, associate medical director of Union Carbide, told the hearing of a health survey conducted by SPI covering 16 plants employing 2372 persons whose current work permits exposure to vinyl chloride, plus 471 who had worked with it in the past. He said that the study identified 1402 men who were exposed to vinyl

SPI's vinyl chloride rules would differ sharply from OSHA's

• A no-detectable level for employee exposure as determined by a sampling and analytical technique capable of detecting vinyl chloride concentrations of 1 p.p.m. with an accuracy of 1 p.p.m. $\pm 50\%$. This would apply to monomer, polymer, and fabricating operations.	• For polyvinyl chloride resin plants, a ceiling of 40 p.p.m. of vinyl chloride this year, 25 p.p.m. in 1975. For vinyl chloride plants, a ceiling of 25 p.p.m. this year, 10 p.p.m. in 1975. PVC fabricating plants would be excluded from the standard.
• Labeling for regulated areas and vinyl chloride-polyvinyl chloride containers with the warning to include the words "cancer suspect agent."	• Labeling should provide those who need the information with methods for dealing with the problem; it should not be a basis for panic because of a disease characterization.
• Use of air-supplied respirators in cases of emergency and when vinyl chloride concentrations rise above detectable levels.	• Use of air-supplied respirators is impractical except for short periods of time. Air-supplied breathing apparatus also should be allowed.

chloride at least 10 years ago of which 416 had a latent period of more than 20 years. Also identified were 787 men exposed continuously to vinyl chloride for more than 10 years, with 104 being exposed for more than 20 years. Dr. Denehl said, "Examinations of these men have failed to show the existence of abnormal liver function tests in greater proportion than would be found in a control population. There is no case of angiosarcoma of the liver among these men even though their exposure time is sufficient for the disease to have occurred and exposures are believed to have been in excess of 50 p.p.m." He concluded that "these data fail to support the need for an exposure level as drastic as that proposed in the standard."

The SPI survey's findings were supported by Diamond Shamrock, Dow Chemical, B. F. Goodrich, Tenneco Chemicals, and Firestone. All reported that despite extensive surveys of their current and former vinyl chloride-PVC workers, no further cases of or deaths due to liver cancer have been found, other than the 13 previously reported to OSHA.

Industry also felt that the proposed standard was too far-reaching. According to Anton Vittone, president of B. F. Goodrich Chemical, "The production of vinyl chloride, its polymerization into PVC resin, and the processing of PVC resin into semifinished or finished products is treated in the proposed standard as one industrial health problem." However, he contended, "Each is an entirely different operation posing its own problems, permitting and requiring different solutions."

Of particular concern to many industry witnesses was the inclusion of PVC processors and fabricators, such as phonograph record makers, under the proposed standard. Monitoring data on vinyl chloride exposure in processing plants were presented by several witnesses, including Philip J. Weaver, director of industrial affairs for B. F. Goodrich. In a conclusion that agreed with those of other witnesses, he said, "Our data does not support this concept of inclusion of processor operations" under the proposed standard since "we find no detectable levels of vinyl chloride in most of the processing work places."

In addition to urging that fabricators and processors not be included under the permanent standard, the Society of the Plastics Industry proposed that in vinyl chloride and PVC plants there be a stepped reduction in worker exposure.

This is in sharp contrast to the American Chemical Society position presented at the hearings by Dr. Stephen T. Quigley, head of the Society's department of chemistry and public affairs, and Howard H. Fawcett, chairman of the ACS Committee on Chemical Safety. ACS, in essence, supports the OSHA proposed standard, asking



PVC fabricators should not be included under the exposure standard, SPI urges

only that the standard be defined as a minimum practical level capable of detection by a recommended method rather than as a no-detectable level.

SPI's proposed standard drew sharp criticism from Anthony Mazzocchi, citizenship-legislative director of the Oil, Chemical and Atomic Workers International Union. He said, "It will be a tragedy if OSHA adopts the so-called 'common denominator' kind of standard that SPI sponsored. Under this approach a standard is adopted that everybody can meet. But those plants that can go further are under no incentive, at that time, to do anything more."

Most companies at the hearing said that although it would be difficult, they could live with SPI's proposed standard. Two companies, however, reported that they are already operating at much lower levels. Dr. V. K. Rowe, Dow director of toxicological research in health and environmental affairs, said that the company, "is generally operating within an eight-hour time-weighted average (TWA) concentration of 10 p.p.m.; however, brief malfunctions and other temporary situations occasionally result in short-term excursions in excess of 10 p.p.m." And Air Products and Chemicals' John T. Barr reported that his company has an eight-hour TWA in the 20- to 25-p.p.m. range for workers in its polymerization building and even lower levels for those in other job locations. Tenneco Chemicals, however, estimated that it would have to spend in excess of \$10 million to reach the exposure levels recommended by SPI.

Vinyl chloride-PVC industry witnesses contended throughout the hearings that meeting the proposed standard was just not technologically feasible, unless workers wore air-supplied respiratory equipment all the time. However, Calgon Corp., which was moved from 20th to last on the witness list, declared that technology was available to remove vinyl chloride from the air. William Lovett of the company's activated carbon division said that the monomer can readily be adsorbed on activated carbon in con-

centrations ranging from 1 p.p.m. to more than 30% by volume in air. He said laboratory results show that 100% removal of vinyl chloride from air or nitrogen streams is technically possible using dual beds.

Earlier in the hearing Tenneco Chemicals testified that it has included carbon adsorption to recover the monomer from two small process streams, neither of which contains air, in plans for its new PVC plant in Pasadena, Tex. However, it pointed out that it considers this activated carbon method to be "wholly impractical" where large volumes of air and small concentrations of vinyl chloride are involved.

Mr. Bommarito expressed the belief that the standard can be met, saying that where "engineering controls may not be applicable, personal protective equipment can be used." He added that especially in newer plants the problem is "characterized by the will, not the ability, to do the job." He concluded that "the medical facts are in and the problem is now in the social and political arena."

International U.S. reactor design loses out in U.K.

U.S. reactor design has lost out in its bid for the next generation of nuclear power stations in the U.K. The British government has opted instead for the steam-generating heavy-water reactor (SGHWR) system. The immediate plan is to build three twin-reactor stations with an overall capacity of about 4000 Mw. of electricity. The first of these stations should be operating by 1982.

The decision, taken by Eric Varley, U.K. Secretary of State for Energy, bucks the trend in other countries, where planned nuclear power programs center on U.S. designs for light-water reactor (LWR) systems, either General Electric's boiling-water reactor (BWR) or Westinghouse's pressurized-water reactor (PWR). Indeed, at public hearings before the Energy Resources Subcommittee of the House of Commons Select Committee on Science and Technology last December, both Arthur Hawkins, chairman of the Central Electricity Generating Board, which supplies power to England and Wales, and Sir Arnold Weinstock, managing director of British General Electric, which has a 50% stake in U.K. National Nuclear Corp., came out strongly in favor of LWR's, primarily because the technology is already proven and can be fairly quickly brought into operation without major design and development effort (C&EN, Feb. 18, page 11).

Mr. Varley cites a number of reasons for deciding on the SGHWR route. "In the government's judgment, it will provide power reliably and we can proceed

Ideas & Trends

Education, Religion, Mental Health

What Is Being Done About Jobs That Can Kill

By JANE E. BRODY

The recent disclosure that four workers in a vinyl chloride plant had developed a rare and fatal liver cancer led to an industrywide search for the discovery, so far, of 21 such cases.

The Department of Labor has concluded hearings on new limits to worker exposure to vinyl chloride, which is a chemical that forms the basis for thousands of plastic products, ranging from tablecloths and phonograph records to water pipes and insulation.

The vinyl chloride findings are only the latest of many instances of occupationally caused cancers. The first was in 1775, when Percivall Pott, an English surgeon, published a medical report describing a high incidence of cancer of the scrotum among the chimney sweeps of London. Dr. Pott's report inspired a ruling three years later by the Danish Chimney Sweepers' Guild that its members should have daily baths to prevent accumulation of cancer-causing soot. Relatively few subsequent discoveries of job-related cancers or other occupational diseases have resulted in prompt protective action.

Danger and Delay

Benzidine, a chemical used in the dye industry, was first described in 1929 by a British factory doctor as suspected of causing cancer of the bladder. In 1958, an American doctor, Mitchell R. Zavon, began compiling bladder cancer cases among workers in a Cincinnati plant. But it was not until 1972 that Dr. Zavon disclosed his findings to Federal authorities responsible for protecting the health



Ken Rindler

of American workers. And it was not until a year ago that Federal rules took effect to prevent worker exposure to benzidine and 13 other known and suspected occupational carcinogens.

Asbestos is a ubiquitous fibrous mineral used for everything from food processing filters to construction materials to brake linings. It has been known for two decades to cause invariably fatal cancers and disabling lung disease. Workers are still not protected, despite a Government ruling. Two years ago, the Department of Labor's Occupational Safety and Health Administration decided to lower the worker exposure standard from five to two fibers per cubic centimeter of air. But at the industry's urging, the agency delayed the effective date of the ruling until 1976. As a result

workers may be inhaling as many as 12.5-billion potentially lethal fibers each year when a level one-fifth that has already been shown to produce cancer in man.

This week a Senate subcommittee is holding hearings on alleged Labor Department foot-dragging on asbestos standards. The charges are that the Nixon Administration deliberately went easy on industry in return for campaign pledges.

The Government is now proposing that the exposure limit of 500 parts of vinyl chloride per million parts of air be lowered to "no detectable level," or one part per million parts of air. The proposal is based on the scientific tenet that there is no "safe" level of a cancer-causing agent.

At the hearings, company representatives asserted the ruling would be "economically not feasible." It would, they said, shut down the entire industry and result in the loss of perhaps 700,000 jobs. Labor sources condemned the conclusion as "hysterical," and Dr. Irvin J. Selikoff of Mount Sinai Hospital, an authority on occupational diseases, pointed out that the Dow Chemical Company had already brought its levels down to below 10 parts per million, with every indication that they can be readily reduced still further.

A Classic Battle

Until the hearings, industry had been extremely cooperative in helping researchers define and control the vinyl chloride hazard. But now the fight is shaping up along classic lines: labor vs. industry and industry vs. Government regulation.

And there is every indication that similar battles will be waged in the years to come. Some 15,000 chemical and physical agents are in industrial use now; hundreds are introduced each year, most of which are untested for disease-causing potential. Assistant Secretary of Labor John H. Stender, head of the three-year-old Occupational Safety and Health Administration, has warned that Government action to protect worker health has only just begun.

As he put it recently: "Research so enthusiastically poured into finding profitable uses for new substances must be expanded to include determining how safe these substances are. Any doubt must be resolved on the side of the employee."

(More Ideas & Trends, Page 16.)

John Herling

SATURDAY, JULY 20, 1974

Protecting Workers— And Their Jobs

Like God's angry man, Peter Bommarito, president of the Rubber Workers Union, stormed at leaders in the chemical and plastics industries for resisting stronger safeguards against cancer-producing vinyl chloride, a substance used in the manufacture of a wide variety of products.

"There are millions of workers—frightened men and women—who don't want to die for their jobs," said Bommarito, who is chairman of the occupational safety and health committee of the AFL-CIO Industrial Union Department which represents 6,000,000 workers in 60 unions. "They want to be told that industry management and union and the government, federal and state, can assure them of a job and their lives. They certainly want both," he continued. "But if this is not possible then they choose life."

Bommarito spoke to an occupational safety conference on vinyl chloride. The hushed audience in the Labor Department auditorium included representatives of management, government and unions. He made it clear he had no intention of bargaining with the health and safety of union men and women—although this has sometimes happened in the past.

Often, when stricter standards are advanced for the protection of the health and safety of workers in plants and/or mines, two things take place. First, the prospect of greater protection for workers scares the industry because of the expenses of implementing safety standards. Second, management warns that the cost of such improvements will be so prohibitive that plants will be closed and workers thrown out of their jobs.

What it comes down to is that workers are confronted with a dread choice: "Your wages or your life."

Based on experience, employers are confident that unions and their leaders, threatened with unemployment, will make some face-saving compromises. These are often filtered through a screen of confusing statistics, to reassure workers that at least for the time being they have no medical cause for alarm.

But Bommarito was having none of that. Like the Oil, Chemical and Atomic Workers, his union has been one of the pioneers in insisting that management must not duck responsibility maintaining safe work places. Bommarito says he has had a bellyful of

Mr. Herling writes frequently on labor topics for these pages.

management's tactics of delay and poor-mouthing of its financial ability to cover the costs of protection.

What it amounts to, he said, is that the "nation is being blackmailed" by managements resisting the application of new effective health standards. They raise the specter of "an end to 1.6 million jobs and national disaster."

Bommarito's voice grew sharper:

"He made it clear he had no intention of bargaining with the health and safety of union men and women."

"This country survived for nearly 200 years without polyvinyl chloride (PVC) and we can survive in the future without it. If PVC cannot be made or used safely, then the proposed standard must be replaced by an orderly procedure to phase out vinyl chloride production and find substitutes for its products, or to phase out the products themselves. This is not an easy position to take. But there is no alternative."

The battle over vinyl chloride is the latest confrontation between labor and industry on the subject of protection for workers against cancer-producing chemicals. Battles over asbestos and carcinogens continue to be fought in Congress and in the courts. Labor, said Bommarito, has listened to experts from all over the world and "we have concluded that the proposed government standard of 'no detectable level' for vinyl chloride is both necessary and feasible."

Bommarito concluded "The issue before us is really not the control of vinyl chloride. The issue is whether life has a higher value than dollars, whether we will permit corporate structures to run the country without control. The language and the intent of the Occupational and Safety and Health Act mean that workers' lives no longer can be sacrificed for financial gain. The vital organs of our bodies are not for sale."

ASI-PR 0002552

UNION CARBIDE CORPORATION
CHEMICALS AND PLASTICS

270 PARK AVENUE, NEW YORK, N.Y. 10017

July 18, 1974

Dr. Robert W. Cairns
Executive Director-American Chemical Society
1155 Sixteenth Street N.W.
Washington D. C.

Dear Dr. Cairns:

I am writing you this letter in part, to protest the position of the American Chemical Society in its statement to the Occupational Safety and Health Administration on the proposed standard for occupational exposure to vinyl chloride and, in part, to ask that you give public notice of the fact that the position of ACS in this matter does not represent consensus of the membership but rather the view of a limited group of committeemen having only a most limited understanding of the facts related to this most sensitive matter. Perhaps had you or your associate, Dr. S. T. Quigley attended the regular sessions of the Hearing, you would have seen first-hand how inept was the presentation of the ACS; the ACS' presented no facts or experimental evidence as to the biological activity of VCM; produced no study as to the value of the proposed monitoring, assay, medical surveillance, and protective equipment recommendations; put on the record no information as the engineering or economic feasibility; offered no epidemiological evidence. As the record now shows, the ACS offered opinion in support of the "no detectable" standard proposes by OSHA while the evidence presented in fact contravenes the need of such a drastic standard. Support of the OSHA proposal by the ACS is especially unrealistic in light of the massive contrary evidence presented by various industry spokesmen (including well-informed ACS members) that:

1. Not even continuous exposure to vinyl chloride monomer in high concentrations over a period of time will necessarily result in any deleterious effects in humans. No evidence of any such effects at levels below 200 parts per million exposure were shown.

2. The animal data on vinyl chloride monomer exposure which is the only possible basis cited for imposing any exposure limits is not only self-contradictory, inconclusive and non-probative in itself but also cannot be and has not been related or translated into human experience. The testimony on the human experience as for example that of Dr. Bernohl, shows that little if any harm has in fact come from employee exposure to vinyl chloride monomer, even over extended periods at high concentrations; see also the Dow Chemical Company testimony that no ill effects on humans at less

ASI-PR 0002553

than 200 parts per million exposure levels were ascertainable from their extensive studies.

3. As to the issue of feasibility, the critical facts are, as the hearing testimony clearly showed without meaningful rebuttal, that there is no way for the industry, with existing technology, to meet the standard proposed by OSHA. The fact that many companies including Union Carbide, are able to meet an employee exposure level for vinyl chloride monomer lower than 50 parts per million does not mean that they can achieve levels below 25-30 parts per million and achieve a no detectable level. The companies are the only ones that have the facts on this phase of the problem and are the only ones in any position to make this sort of assessment. They conclude unanimously, as all have emphatically stated, achieving a no detectable level is simply not possible at the present time, even though they are all willing to make the attempt. Statements by ACS that the OSHA proposal can be met arise wholly out of ignorance or a self-serving desire to justify a position otherwise unsupportable.

The evidence OSHA possesses and noted by ACS merely shows that a statistically insignificant number of employees, exposed continuously for prolonged periods of time to high vinyl chloride monomer concentration, could possibly get angiosarcoma; even that result is not a proven certainty. The evidence showed nothing else, nor will a review of the OSHA and NIOSH presentations at the hearing show any warrant for any such stringent regulations as is proposed. If there is truly a hazard even from unregulated vinyl chloride monomer exposures it at best is slight; limited to a workplace producing or using vinyl chloride monomer and, indeed, to a very few areas in any such workplace, without any impact on the environment outside; and a hazard in the workplace only at continuous exposure levels far beyond those OSHA limits either in effect at this time or proposed.

Perhaps the ACS position paper might have given notice that there will be a severe environmental impact resulting from the economic consequences of adopting the proposed standard, wholly unwarranted by the hazard sought to be met, and which ought not to be imposed either on employers; on the employees affected by job loss; or on the consumers who use vinyl chloride monomer-related products in many harmless forms.

The Directors of the ACS as a minimum, might have sought advice and comment from ACS members who are working in the midst of this sensitive matter before the Directors issued a position paper in behalf of these members.

In summary, it is my view that the ACS did a dis-service to its membership by participating at the Hearing on occupational exposure to vinyl chloride in support of the proposed OSHA Standard without

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providing factual evidence generated by the ACS through research or survey on which to enlarge the total understanding of the sensitive matter of VCM toxicology. The participation implied that the ACS position was that of its membership which, by my standards, is a gross misrepresentation. As a minimum corrective action, I ask you to put on the public record the fact that the presentation by ACS at the Hearing is the view of a limited number of Director members and not the consensus of the ACS membership. Additionally I would hope that the ACS refrains from continuing to create a public record on the matter of VCM toxicity until such time as the ACS itself has a factual contribution to make to the issue.

With kindest personal regards and the hope that the views of an active ACS member of more than 35 years will be heard.

Very truly yours,



A. B. Steele

ABS/nn