



Public Affairs Bulletin

VRD 0002007346

Public Affairs Committee
of The Society of The Plastics Industry, Inc.
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No. 6 - July 1974

WRAP-UP OF THE OSHA HEARINGS ON VCM

As promised, here is a summary of the second week of OSHA hearings on the subject of Vinyl Chloride Monomer. As in the past, this issue will contain a direct copy of a news release on the subject (beginning on the next page).

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OUR NEW LOOK

This is the first issue of the Public Affairs Bulletin to use our newly designed letterhead. It is our intent to set these public affairs communiques apart from the rest of your mail and make it easier for you to identify. We hope you like it.

B. Kasper -
Vintex

REMINDER TO PROCESSORS

Until OSHA issues their new permanent standard, you are obliged to comply with their emergency temporary standard which went into effect last April 5th.

SUMMARY OF SECOND WEEK OF OSHA HEARINGS ON VINYL CHLORIDE

July 8

The B.F. Goodrich Chemical Company was the lead-off witness for the second week of hearings. In its testimony, Goodrich stated that a no-detectable level is technologically infeasible, and that it is not safe to require employees to wear respiratory protection for full eight-hour work shifts.

According to John L. Nelson, Vice President Manufacturing, "peak exposure levels ten and twenty years ago were 100 times today's emergency standard, and probably averaged forty times today's average levels." This year, average exposure levels in Goodrich plants have been reduced from about 35-40 ppm to about 12-14, with some excursions over 50.

Nelson also said that construction of a new PVC facility at the Louisville plant will begin about mid-1975. Preliminary engineering work on the new plant was started in 1972.

Dr. Condict Moore, Director of the Cancer Center, University of Louisville School of Medicine, reported on a new three-part research program being sponsored by Goodrich to investigate the health effects of vinyl chloride.

In other testimony, Johns-Manville, the nation's largest manufacturer of PVC pipe, asked OSHA to exempt manufacturers of PVC pipe and pipe fittings from the proposed standards, or, as an alternative, to develop a separate standard for the pipe industry. J-M submitted the draft of a proposed alternative standard with its comments.

The Armstrong Cork Company requested OSHA to exempt from coverage under the standards any manufacturer using PVC resin containing less than 0.2 percent uncombined monomer.

July 9

The International Association of Machinists and Aerospace Workers supported the proposed standard, and warned that the VCM situation is creating a psychological problem among long-term workers, who are worried about what may be happening to them as a result of their past exposure.

Anthony Mazzocchi of the Oil, Chemical and Atomic Workers International Union questioned industry claims as to the technical infeasibility of the proposed standard and urged that fabricators be included in the coverage.

Goodyear recommended the establishment of separate standards for the producers of VC monomer, the producers of PVC resin, and for fabricators. In its testimony, Goodyear said that it "fails to see how OSHA can scientifically conclude that exposure to vinyl chloride at concentrations of 50 ppm can constitute a serious health hazard to humans."

The American Chemical Society endorsed the proposed "no detectable" standard because of the lack of available data establishing a safe level of exposure to vinyl chloride, but recommended periodic review of the standard in light of new data. The Society provided no details as to the scientific basis for its recommendation, but indicated that it relied heavily on advice from the National Institute for Occupational Safety and Health, which made the original "no detectable level" recommendation to OSHA earlier this year. In cross examination, VCM and PVC company representatives, themselves members of ACS, were sharply critical of the claim that the ACS position was truly representative of its membership's opinion, since no one from the vinyl industry, as far as could be determined, had been consulted.

Representatives from the Health Research Group also supported the proposed standard.

July 10

The Firestone Plastics Company was the principal witness of the day. Its president, Todd C. Walker, supported an exposure level of 25 ppm Time Weighted Average (TWA) coupled with a 40 ppm ceiling, but disagreed with SPI's recommendation of stepped reductions over the next two years.

"This exposure level should be maintained as the permanent standard until further ongoing medical experimentation and study -- of the human as well as animal experience -- is completed and more definitive conclusions have been reached concerning the nature and consequences vinyl chloride may have on industry employees," he said.

Firestone, who had retained an independent organization to conduct an extensive feasibility study based on known technology, estimated that it might cost as much as \$20 million for it to meet the 25 ppm TWA and 40 ppm ceiling which it recommended.

A number of PVC processors and fabricators testified that if a "no detectable level" standard forced a shutdown of the PVC resin industry, they too would be forced out of business.

July 11

On the final day of the hearings, the Calgon Corporation described laboratory experiments showing that vinyl chloride can be totally removed from air by filtering it through beds of activated carbon. Calgon is a major manufacturer of activated carbon.

Under questioning, Calgon admitted that the installation costs of such a system would be quite high, and that the system would be most useful in limiting VCM emissions to the ambient air, but that it would have a minimal effect on worker exposure.

At the close of the hearings, presiding Administrative Law Judge Gordon Myatt fixed August 23 as the final day for submission of post-hearing comments and exhibits. He also announced that the Foster D. Snell Company has been retained by OSHA to conduct a technological and economic feasibility study to determine the effect on the vinyl chloride industry if the final standard were set at a level greater than zero. Various levels of exposure will be used by Snell in their study, the results of which will be made available to the public for comment.

In an impromptu post-hearing press conference, Daniel P. Boyd, Director of the OSHA Office of Standards Development, said the final standard would not be so tough as to force a shutdown of the vinyl chloride industry. He indicated that the standard would be "somewhere between zero and 25 ppm."

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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)

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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 uncontested 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.

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).

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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.

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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

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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.

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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.

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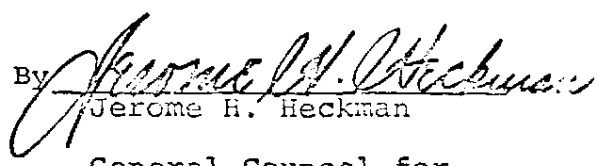
THESE PREMISES CONSIDERED, it is respectfully submitted that the Draft Environmental Impact Statement should be revised extensively so that the final Statement more completely and accurately addresses all of the issues as they have now been more fully developed. It is the

NRD 0002007362

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



VRD 0002007363

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.

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

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 word 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 work-place 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. Connors, 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. McBurney, 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. Dornick, 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.

- Labeling for regulated areas and vinyl chloride-polyvinyl chloride containers with the warning to include the words "cancer suspect agent."

- Use of air-supplied respirators in cases of emergency and when vinyl chloride concentrations rise above detectable levels.

- 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 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 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 Vitton, 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 the 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 LWRs, primarily because the technology is already proven and can be fairly quickly brought into operation without major design and development effort (C&EN, Feb. 16, 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 and 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. Irving 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."

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John Herling

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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."