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UNITED STATES COURT OF APPEALS
FOR THE SECOND CIRCUIT

Nos. 505, 603-608, 670, 671 September Term, 1974

Argued December 13, 1974 Decided January 31, 1975

Docket Nos. 74-2284 74-2450
74-2286 74-2491
74-2308 74-2585
74-2345 74-2609
74-2449

THE SOCIETY OF THE PLASTICS INDUSTRY, INC., Petitioner

v.

OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION, ET AL., Respondents

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HOOKER CHEMICALS & PLASTICS CORPORATION, and AIR PRODUCTS AND CHEMICALS, INC., and TENNECO CHEMICALS, INC., Petitioners

v.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, ET AL., Respondents

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UNION CARBIDE CORPORATION, Petitioner

v.

UNITED STATES DEPARTMENT OF LABOR, ET AL., Respondents

THE B. F. GOODRICH COMPANY, Petitioner

v.

PETER J. BRENNAN, ET AL., Respondents

FIRESTONE PLASTICS COMPANY, A Division of the FIRESTONE TIRE & RUBBER COMPANY, Petitioner-Intervenor

v.

UNITED STATES DEPARTMENT OF LABOR, ET AL., Respondents

UNIROYAL INC., Petitioner

v.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTATION, ET AL., Respondents

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GENERAL DYNAMIC CHEMICAL CO., INC., Petitioner

v.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, ET AL., Respondents

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THE DIAMOND SHAMROCK CHEMICAL CO., INC., Petitioner

v.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, ET AL., Respondents

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An amicus curiae brief was filed on behalf of Chemical Fabrics & Film Association.

Before: CLARK, Associate Justice,* BRYAN, District Judge,** and DUFFY, District Judge.***

Petitions for Review of the Vinyl Chloride Regulation, 29 C.F.R. §1910.93q, of Occupational Safety and Health Standards for the Vinyl Chloride Industry, promulgated by the Secretary of Labor, pursuant to 29 U.S.C. §655. Petitions are denied.

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* United States Supreme Court, Retired, sitting by designation

**United States District Court, Southern District of New York, Retired, sitting by designation

***United States District Court, Southern District of New York, sitting by designation

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MR. JUSTICE CLARK:

This is a petition for review of the health and safety regulations for the vinyl chloride industry, 29 C.F.R. §1910.93q, promulgated by the Secretary of Labor on October 4, 1974, pursuant to the Occupational Safety and Health Act, 29 U.S.C. §651 et seq. (hereinafter OSHA). The standard and the Secretary's statement of reasons for its imposition are set forth at 39 Fed. Reg. 35890-35898. In brief, the Secretary has adopted a standard which requires that no worker is to be exposed to concentrations of vinyl chloride in excess of one part per million (ppm) averaged over any eight-hour period, 29 C.F.R. §1910.93q(c)(1).

Petitioners -- manufacturers of vinyl chloride and vinyl chloride products -- make five principal claims: (1) the available scientific and medical evidence does not establish that the 1 ppm exposure level adopted by the Secretary is required by health or safety considerations; (2) that the Secretary violated the requirements of 29 U.S.C. §655(b)(5) by adopting a standard which is technologically and economically infeasible for the industry

to meet; (3) that the standard is so vague and uncertain in its terms that enforcement will violate the requirements of due process; (4) that there was no substantial evidence in the record to support the Secretary's conclusion that those who fabricate products out of vinyl chloride should be subject to the same requirements as those who produce vinyl chloride; and (5) that the Secretary's sign and labelling requirements unduly and hency unlawfully emphasized the carcinogenic properties of vinyl chloride. We find these contentions meritless, and the petitions for review are accordingly denied.

I.
SCOPE OF JUDICIAL REVIEW

Before proceeding to an examination of the regulations at issue in this case, it would be wise to reemphasize the unique nature of the court's role under OSHA. Although the statute sets forth general policy objectives and a procedural framework, the formulating of specific safety and health policies is left to the Secretary, subject to review in the United States Courts of Appeals. Our mandate is contained in 29 U.S.C. §655(f), which states in relevant part:

> The determinations of the Secretary shall be conclusive if supported by substantial evidence in the record considered as a whole.

Yet the traditional "substantial evidence" test is almost impossible of application where, as here, the Secretary's decision-making is essentially legislative in character.

The problems involved in according judicial review in such circumstances have been wisely discussed by Judge McGowan in Industrial Union Department, AFL-CIO v. Hodgson, 499 F. 2d 467 (D.C. Cir. 1974), who pointed out that, under OSHA:

> [T]here are areas where explicit factual findings are not possible, and the act of decision is essentially a prediction based upon pure legislative judgment, as when a Congressman decides to vote for or against a particular bill.
>
> *****
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> [P]olicy choices of this sort are not susceptible to the same type of verification or refutation by reference to the record as are some factual questions. Consequently, the court's approach must necessarily be different no matter how the standards of review are labeled. [499 F. 2d at 474-75.]

In these circumstances, Judge McGowan concluded, the reviewing court must recognize that its task defies generalized description and go from there to achieve its paramount objective which "is to see whether the agency, given an essentially legislative task to perform, has carried it out in a manner calculated to negate the dangers of arbitrariness and irrationality in the formulation of rules for general application in the future." Automotive Parts & Accessories Assn. v. Boyd, 407 F. 2d 330, 338 (D.C. Cir. 1968).

Thus armed with these salutary remarks on our limitations and our obligations, we turn to the challenged regulations. The examination of the 4,000-page record in this case has been a prodigious task, aggravated by duplications of testimony, irrelevant exhibits and letters, almost illegible reproduction of documents, and a generally blunderbuss approach in petitioners' briefs. Given the task, however, we have performed it and conclude that the standard laid down by the Secretary is fully supported by the record and well within the requirements of Universal Camera Corp. v. NLRB, 340 U.S. 474 (1951), and Assoc. Industries of New York State, Inc. v. Department of Labor, 487 F. 2d 342 (2d Cir. 1973), as well as Industrial Union Department, AFL-CIO v. Hodgson, supra.

II.
BACKGROUND

There are three basic components of the vinyl chloride industry. First, there are the manufacturers of vinyl chloride itself. A gas at ambient temperatures and pressure, vinyl chloride monomer (VCM) is primarily synthesized by the oxychlorination of ethylene in a handful of large outdoor production plants which resemble oil refineries. Shell, Dow, and Goodrich are the leading producers, accounting for some 50% of the 5.2 billion pounds annually available in the United States. Because of the high degree of automation involved in this manufacturing process, only some 1,500 workers are employed in VCM production. VCM plants are open-air facilities, primarily in the South.

Second, there are the manufacturers of polyvinyl chloride (PVC). Virtually all vinyl chloride is polymerized into thermoplastic PVC resin which serves as the basis for a wide variety of useful plastics products. Goodrich is by far the largest single producer, producing some 20% of the country's 5.4 billion pounds annually, though in total there are only 21 companies operating the 37 PVC plants. Historically, PVC production has been a "batch" or non-continuous operation carried out in relatively small (2,000-6,000 gallon) "reactors" which require frequent cleaning; the trend, however, is towards substantially larger reactors. PVC plants are not open-air facilities and are generally located in colder climates than VCM plants. They employ some 5,000 workers.

Third, and finally, there are the fabricators of products which utilize PVC resins. Innumerable firms throughout the country, employing thousands of workers, compound PVC with plasticizers, heat stabilizers, lubricants, light stabilizers, flame retardants, or impact modifiers to produce an astounding variety of wares, such as pipes and conduits for building and construction, flooring, wire and cable, furniture, phonograph records, and packaging. In fabrication, residual VCM that has been entrapped in the PVC resin escapes during the heating process, and in this way workers in the fabricating industry are also exposed to vinyl chloride.

It is now clear that the workers in all components of the vinyl chloride industry are subjected to a serious health risk from VCM. Although conclusive proof of the carcinogenic and, in turn, fatal character of VCM did not emerge until early in 1974 when the deaths of three workers in Goodrich's PVC plant at Louisville were reported, strong warning signals had appeared long before. As early as 1949, when the vinyl chloride industry had barely reached its tenth anniversary, a study conducted among vinyl chloride workers in the Soviet Union found liver damage in 15 of 48 workers studied, and in 1958 and 1959, Dow Chemical scientists elicited liver irregularities in rats and rabbits at a 100 ppm concentration of VCM. Although Dow recommended a 50 ppm allowable level in 1961, the industry adhered to its previous 500 ppm standard.

We need not outline in detail the morbid "Vinyl Chloride Chronology", published by an industry spokesman, the Manufacturing Chemists Association (MCA), in a 1974 press release (Joint Appendix at 134-145) in order to illustrate the mounting evidence of VCM's carcinogenicity. Indeed, the record shows what can only be described as a course of continued procrastination on the part of the industry to protect the lives of its employees. In 1967, when the industry had not reached its thirtieth anniversary, upon receiving recurring reports of the softening of the finger tips and bone of VCM/PVC workers, the Manufacturing Chemists Association had the University of Michigan study the causes of this abnormality. Three years later, in 1970, when it was advised that research could not pinpoint the cause of the malady but recommended a VCM/PVC ceiling of 50 ppm VCM, nothing was done. And in March of the same year, Dr. P. L. Viola of the Regina Elena Institute for Cancer Research in Rome, Italy, published a report that 30,000 ppm VCM exposure for four hours per day, five days per week for a year produced cancer of the skin, lung, and bones of rats, and a few months later at the Tenth International Cancer Congress, described observations of malignant tumors in the ear canals of rats subjected to the same exposure. Apparently, relying on Dr. Viola's comment at the close of his abstract that: "No implications to human pathology can be extrapolated from the experimental model reported in the paper," the industry did nothing.

In 1971, MCA began to inquire by letter regarding the conduct of toxicological studies on laboratory animals with VCM and in May of 1971 heard a detailed presentation by Dr. Viola regarding his earlier studies as well as other studies then unreported. The industry began talking about raising funds for epidemiological research on VCM carcinogenicity, but not until March 30, 1972, did 17 U. S. companies agree to finance such a study. By then, the first deaths of U. S. workers due to VCM exposure were being recorded.

Months were consumed in 1972 by negotiations among the participating company representatives, and it was not until February of 1973 that a protocol was agreed upon and a research contract for animal exposure studies signed. Meanwhile, startling results from European experiments were filtering back to the industry. By January of 1973 it was discovered that European experiments with rats had not only found tumors of the ear canal (which Dr. Viola had reported as early as 1970), but also of the kidneys and liver at concentrations as low as 250 ppm VCM, but not at 50 ppm. This discovery, however, was kept confidential, and it was not even revealed to the National Institute of Occupational Safety and Health (NIOSH) until July 17, 1973.

Earlier, on September 27, 1971, a patient of Dr. J. L. Creech, Jr., plant physician of the B. F. Goodrich Chemical Company in Louisville, Kentucky, died. The patient had been employed for 15 years as a helper and operator in Goodrich's Louisville PVC plant. When first hospitalized, a tentative diagnosis was made of a bleeding duodenal ulcer, but upon re-admittance and after an exploratory laparotomy and biopsy was carried out, he was found to have angiosarcoma of the liver, an exceptionally rare and irreversible cancer which strikes only 1 person in some 50,000, no more than 20-30 persons a year. Eighteen months later, on March 3, 1973, another former employee of the Louisville plant died, and a third died on December 19, 1973, again of angiosarcoma of the liver. Recognizing the rarity of the tumor and learning that all three had worked in the Goodrich PVC plant, Dr. Creech brought the matter to the attention of Goodrich, and then on January 22, 1974, to the attention of the National Institute of Occupational Safety and Health (NIOSH).

News of other deaths followed swiftly. On January 29, 1974, Goodrich reported the death of a fourth former employee from angiosarcoma; a report of the death of a fifth employee followed on February 15th. Six days later, Union Carbide advised NIOSH of the death of one of its PVC workers from liver angiosarcoma. Goodyear Tire and Rubber Company announced a vinyl chloride worker fatality from liver angiosarcoma on March 1, 1974, and reported two more such deaths from the same cause on March 22nd. Goodrich reported cases of liver angiosarcoma in two of its living employees.

On April 16, 1974, Firestone Plastics announced the death of one of its employees from the same disease. Finally, on May 10, 1974, the National Cancer Institute diagnosed another Union Carbide VCM worker as a victim of the same disease. In all, the deaths of 13 workers in the PVC and fabricating industries were reported.

III.
THE SECRETARY'S ACTIONS

Two days after Goodrich made its report to NIOSH of its first three VCM worker deaths, an inspection of its plant by NIOSH indicated considerable exposure of workers to VCM, and control procedures as well as precautionary monitoring were recommended. NIOSH alerted other federal agencies and after additional investigation soon concluded that VCM was the suspect agent for a new occupational cancer. On April 5, 1974, the Assistant Secretary of Labor, acting on behalf of the Secretary, held a hearing and promulgated an emergency temporary standard of 50 ppm TWA1/ in lieu of the prevailing 500 ppm one. At the hearing, industry itself showed concern, and evidence was presented that both VCM and PVC plants could reduce concentrations below 50 ppm TWA. As in the past, Dow Chemical spoke out for worker safety and urged that industry exposure be reduced to 50 ppm TWA by operational and engineering changes and that appropriate respiratory protection be given where such level was not attainable. The Assistant Secretary concluded that the evidence demonstrated VCM to be carcinogenic for man. See 39 Fed. Reg. 12342. Monitoring and housekeeping requirements were also imposed, and a requirement was included that, if the 50 ppm level was breached, appropriate respirators equipment be furnished workers. The emergency order was limited to six months "during which time the whole question of possible exposure of humans to VC would be reconsidered more fully and in the light of more information, including experiments which are underway at the time."

On April 9, 1974, the Industrial Bio-Test Laboratory notified MCA that its preliminary findings in their animal exposure study showed that angiosarcoma of the liver was produced in mice at a level of 50 ppm of vinyl chloride, and MCA so informed the federal government. On May 10, 1974, the Assistant Secretary again acted. Issuing a notice of proposed permanent rulemaking, he drew attention to the MCA study results and noted that: "the question of a safe level of exposure for humans cannot be determined at this time, and may continue as a matter for scientific

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1/ Time Weighted Average (TWA) represents a worker's cumulative exposure to a toxic substance during a 9-hour shift.

deliberation for many years." 39 Fed. Reg. 16986. In the interim, he concluded, it was necessary to abandon the 50 ppm emergency temporary standard and to establish it at as low a level as can be detected using methodologies sensitive to 1 ppm plus-or-minus 50%, i.e., the so-called "no-detectable" level. This level was to be reached through the "institution of engineering controls and work practices as soon as feasible," but respiratory protection was to be afforded where the goal could not otherwise be achieved.

On May 24, 1974, notice of a hearing on the proposed standard to be held before an Administrative Law Judge was given. Eight days of hearings were held during June and July of 1974, and additional materials were received from interested parties until September 25th. In addition, the record of the previous hearing on February 25, 1974, was ordered to be included.

On October 1, 1974, the final standard was promulgated, effective January 1, 1975.2/ See 39 Fed. Reg. 35890. The main provisions are as follows:

(1) The standard applies to manufacturers of VCM and PVC and to fabricators of PVC, but excludes those merely handling or using already-fabricated products. 29 C.F.R. §1910.93q(a)(2).

(2) In place of the potentially obscure "no detectable level" standard, a permissible exposure limit not greater than 1 ppm averaged over an eight-hour period is set, but allows for peaks of VCM exposure up to 5 ppm during periods not exceeding 15 minutes. 29 C.F.R. §1910.93q(c).

(3) All employers are required to conduct an initial program of monitoring and measurement of exposure levels, but need not continue monitoring if initial levels are below the so-called "action level" of 0.5 ppm averaged over the eight-hour work day. 29 C.F.R. §1910.93q(d).

(4) The standard requires that "feasible engineering and work practice controls" be employed to reduce exposure below the permissible exposure wherever possible or to the lowest practicable level if not possible, supplemented by respiratory protection. 29 C.F.R. §1910.93q(f)(2).

2/ Petitioners' application for stay of the January 1st deadline was granted pending our disposition of the matter.

(5) Where respiratory protection is required under the standard, suitable equipment, as indicated by a chart in the standard, shall be provided, and use shall be required of employe s unless the VCM level is below 25 ppm measured over any 15 minute period, in which case the use of respiratory equipment is optional with the employee until January 1, 1976. 29 C.F.R. §1910.93q(g)(1).

(6) Employees working in certain hazardous operations, especially those involved in physically cleaning the interiors of PVC manufacturing reactors, shall be provided protective garments and respiratory protection. 29 C.F.R. §1910.93q(h).

(7) A medical surveillance program is required for all employees exposed to VCM in excess of the action level of 0.5 ppm. 29 C.F.R. §1910.93q(k).

(8) Finally, in addition to certain record-keeping requirements, all entrances, work-areas, and containers related to VCM or PVC manufacture and PVC fabrication are required to be labelled with the warning legend: "Cancer-Suspect Agent". 29 C.F.R. §1910.93q(l).

IV.
PETITIONERS' CONTENTIONS

(a)

Petitioner's initial claim is that the available sci n-tific and medical evidence does not establish that the 1 ppm exposure level adopted by the Secretary is required by health or safety considerations. They claim that no proof exists in the record to justify such a low standard, since all of the medical witnesses testified that no one can say whether exposure to VCM at low levels was safe or unsafe. Further, they point to studies of employee health by Dow Chemical over a number of years which concluded that exposure to VCM below 200 ppm did not lead to any adverse effect.

We find, however, that the evidence is quite suffici nt to warrant the Secretary's choice. First, it must be remembered that we are dealing here with human lives, and the record reveals that 11 manufacturing plant workers and two fabrication plant workers have already died from the effects of this potent chemical. Moreover, the animal exposure study, sponsored by MCA, the industry's own trade association, identified fatal liver angiosarcoma and other kidney and liver diseases at the 50 ppm level. None of the physicians or scientists who testified could identify a safe level of exposure to VCM, nor the precise mechanism by which it produces cancer; yet expert after expert recommended that this "very virulent" carcinogen be restricted to the lowest detectable level. Indeed, as one witness, Dr. Kraybill of the National Cancer Institute, testified:

> Certainly, there is little margin for safety if a response can be expected at a level below 50 parts per million which in truth is now only a fifty-fold safety factor in terms of the proposed standard. According to toxicological principles, were this compound a non-carcinogen, then to establish a tolerance or safe level, there would have to be a 100 to 1 margin of safety in terms of a no-effect level, and from the experimental data on the animals, we don't even know what the no-effect level is. Obviously, this would put the allowable level at a small fraction of a given standard -- of the given standard.

As in Industrial Union Department, AFL-CIO v. Hodgson, supra, the ultimate facts here in dispute are "on the frontiers of scientific knowledge", and, though the factual finger points, it does not conclude. Under the command of OSHA, it remains the duty of the Secretary to act to protect the workingman, and to act even in circumstances where existing methodology or research is deficient. The Secretary, in extrapolating the MCA study's finding from mouse to man, has chosen to reduce the permissible level to the lowest detectable one. We find no error in this respect.

(b)

Failing in this contention, petitioners strongly urge that the Secretary breached his statutory mandate to insure that the standard selected is a "feasible" one.3/ Relying on the so-called Snell Report,4/ petitioners claim that VCM and PVC manufacturers will never be able to reduce levels of exposure to 1 ppm through engineering means. They point to the conclusion reached by the Snell Report that:

3/ 29 U.S.C. §655(b)(5) provides in part:

> The Secretary *** shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity ***.

4/ This report, "Economic Impact Studies of the Effects of Proposed OSHA Standards for Vinyl Chloride," was prepared in September of 1974 by Foster D. Snell, Inc., an independent consultant, at the request of the Secretary of Labor and estimates the cost to the industry of complying with various exposure levels between 50 ppm and 0-1 ppm. Plant and industry visits were the principal means of information gathering.

> The costs of compliance increase rapidly with decreasing VCM target levels and represent significant engineering uncertainty or infeasibility beyond 10 ppm ceiling and 2-5 ppm TWA for the VCM industry and 15-25 ppm ceiling and 10-15 ppm TWA for the PVC industry.

According to the report, "[b]ased on the industry surveys and Snell's independent assessments of the state-of-the-art of the technology," the standard price of VCM would only rise from 7.41¢/lb. at present to 7.69¢/lb. at a target level of 2-5 ppm TWA, but would supposedly soar to 12.71¢/lb. at the "no-detectable" level.

In his statement of reasons in support of the standard, the Assistant Secretary acknowledged the industry contention and the Snell conclusion about the infeasibility of the 1 ppm level, but noted that: "Labor union spokesmen and the Health Research Group, Inc., however, have suggested that such a level is attainable." The Assistant Secretary went on to say:

> Since there is no actual evidence that any of the VC or PVC manufacturers have already attained a 1 ppm level or in fact instituted all available engineering and work practice controls, any estimate as to the lowest feasible level attainable must necessarily involve subjective judgment. Likewise, the projections of industry, labor, and others concerning feasibility are essentially conjectural. Indeed, as Firestone has suggested, it is not possible to accurately predict the degree of improvement to be obtained from engineering changes until such changes are actually implemented.
>
> We agree that the PVC and VC establishments will not be able to attain a 1 ppm TWA level for all job classifications in the near future. We do believe, however, that they will, in time, be able to attain levels of 1 ppm TWA for most job classifications most of the time. It is apparent that reaching such levels may require some new technology and work practices. It may also be necessary to utilize technology presently used in other industries. In any event, the VC and PVC industries have already made great strides in reducing exposure levels. (See testimony of Dow Chemical Co., TR 973). For example, B. F. Goodrich testified (TR 1120) that it has reduce average exposure levels in several PVC plants from 35-40 ppm early this year to 12-13 ppm at the time of the hearing. We are confident that industry will continue to do so. [39 Fed. Reg. at 35892.]

We cannot agree with petitioners that the standard is so clearly impossible of attainment. It appears that they simply need more faith in their own technological potentialities, since the record reveals that, despite similar predictions of impossibility regarding the emergency 50 ppm standard, vast improvements were made in a matter of weeks, and a variety of useful engineering and work practice controls have yet to be instituted. In the area of safety, we wish to emphasize, the Secretary is not restricted by the status quo. He may raise standards which require improvements in existing technologies or which require the development of new technology, and he is not limited to issuing standards based solely on devices already fully developed. Cf. Chrysler Corp. v. Dept. of Transportation, 472 F. 2d 659, 673 (6th Cir. 1972); Natural Resources Defense Council, Inc. v. E.P.A., 489 F. 2d 390, 401 (5th Cir. 1971).

There is much testimony in the record, especially in the Snell Report, indicating that VCM concentration can be easily pinpointed and largely corrected. For example, many of the companies engaged in PVC manufacture still perform the cleaning of batch reactors by opening the vessel and having the worker physically enter it. In chipping off the accretion from the walls of the vessel, the worker is thus exposed to a high concentration of VCM. Yet other, less hazardous methods are currently available and in use, in which the vessels are cleaned by machinery, emulsions or simply water under high pressure. Other sources of exposure are encountered in filling tank cars, measuring, testing and repairing pipe joints or other connections. The Snell Report indicates that much of this may be alleviated.

But whether it can or not, the Secretary's compliance scheme does not rest only on engineering and work practice controls. He does mandate that the industry use such technology to the extent feasible, but, more importantly, he requires that, in addition, respiratory protection be used if engineering means cannot bring the VCM level down to the permissible limit.

To be sure, respirators have their drawbacks. Thes problems were detailed at the hearings and recognized by the Assistant Secretary. Self-contained and air-hose type breathing equipment is bulky, expensive, and infeasible for full-time use, as well as potentially hazardous in terms of tripping, restricted mobility, and over-exhaustion of workers. But the fact remains that they effectively eliminate exposure to VCM, and they are already being used by some PVC companies in the cleaning process and at other points in production with good success.

Like the industry's claims about the impossibility of achieving compliance through technological means, petitioners' claims of dire consequences from the requirement of respiratory protection are exaggerated. It does not appear that full-time use of respirators is necessary, and the Snell Report points this out. Furthermore, lightweight, inexpensive cartridge or cannister-type respirators, which can effectively filter out VCM at low levels, are not available and acceptable. Contrary to petitioners' assertions, the Snell Report indicates that a variety of respirators are reasonably available.

(c)

We find that the Secretary's directions are clear, definite, and certain and that they are also entirely feasible, since the goal of the lowest detectable level can definitely be attained through the combination of technological means and respirators. Our conclusion in this regard is buttressed by the fact that only some 6,500 of the workers coming under the standard -- those in the VCM and PVC manufacturing field -- are potentially exposed to high or constant VCM concentrations, and only a small percentage of them are actually subject to excessive concentrations of the chemical during manufacture. The remaining hundreds of thousands of workers are in the fabrication field where exposure is already so low that some of the petitioners claim that the fabricators should not even be under the standard; these, of course, have been included because of their work with PVC resin which in final form contains residual amounts of VCM, and the record shows that two deaths have in fact occurred among fabricators.

If, in the future, the monitoring under the standard indicates that the VCM level among fabricators is sufficiently low and that the sporadic, unpredictable exposure of these workers to residual VCM has been controlled, the fabricators might well be excluded or included in a separate, less rigorous standard. Certainly if PVC producers were able to eliminate all residual VCM from the resin before it is delivered to the fabricator, there would seem to be no reason for their inclusion. But this would be for the Secretary to decide on appropriate application or on his own motion, and, as the record presently stands, their inclusion is amply justified.

In any event, compliance is time-phased and, if the petitioners find that they cannot comply for reasons beyond their control, OSHA permits the amendment of standards. See 29 U.S.C. §655(b)(6)(a). Upon application and sufficient proof of such a situation, we feel certain that the petitioners would obtain relief at the hands of the Secretary. This is especially true of the "cancer suspect agent" labelling requirements which

petitioners urge are beyond statutory contemplation. We think that the Secretary is simply "fighting fire with fire" and using the labels to bring the danger of vinyl chloride forcibly to the attention of the workers. Cf. Synthetic Organic Chemical Mfrs. Assn. v. Brennan, 503 F. 2d 1155 (3rd Cir. 1974). They deserve no less treatment. We have also considered the other arguments of the petitioners and find them untenable.

V.

It is our conclusion that the challenged aspects of the Secretary's vinyl chloride standard are supported by substantial evidence in the record and that the petitions for review must be denied. Taking into account the delay occasioned by these petitions, we think that a reasonable "lead time" is appropriate and therefore order that the Secretary's regulations, rather than being effective January 1, 1975, shall become effective sixty days after the date of this order and that the time requirement as to respiratory protection contained in 29 C.F.R. §1910.93q (g)(1) is re-scheduled accordingly.