

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^a 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).

(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 employees 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

employees exposed to VCM in excess of the action

29 C.F.R. §1910.93 q (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(1).

IV.

PETITIONERS' CONTENTIONS

(a)

Petitioner's initial claim is that 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. 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 sufficient 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 liver adenocarcinoma and other liver diseases at 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).

Falling 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:

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., 469 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.

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. These 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 canister-type respirators, which can effectively filter out VCM at low levels, are now 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 (3d Cir. 1974). They deserve no less

treatment. We have also considered the other arguments of the

petitioners and find them unavailing.

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.