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CENTRAL DOCKET
SECTION

James C. Berry
Acting Branch Chief
Chemicals and Petroleum Branch
U.S. Environmental Protection Agency
Office of Air Quality, Planning and Standards
Research Triangle Park
North Carolina 27711

Re: EPA Review of the Vinyl Chloride Standard

Dear Mr. Berry:

The Society of the Plastics Industry, Inc. (SPI) is submitting these comments in response to your letter of February 25, 1983.* Your letter included a draft "Chapter 5" discussing the model plant parameters and regulatory alternatives which will be used as a basis for revisions to the vinyl chloride (VC) standard. In addition, your letter forwarded a revised report by TRW, Inc. dated February, 1982, and captioned "Vinyl Chloride--A Review of National Emission Standards."

* SPI represents 1,200 member companies and is the major national trade association of the plastics industry. Its membership represents over 95% of the production and about 75% of the sales of plastics materials in the United States. SPI is organized into approximately 50 operating units. These comments reflect the views of SPI's Vinyl Institute, formerly the PVC Safety Group, which is comprised of the major manufacturers of vinyl chloride monomer and polyvinyl chloride resin.

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SPI submitted suggested changes to the vinyl chloride standard in July, 1982, and met with Agency personnel in November, 1982, to discuss potential changes. A copy of our previously-submitted recommendations is attached. While your February 25 letter did not refer to our suggestions, we trust that this does not reflect a decision by the Agency not to consider the problems presented by the existing standard. Indeed, we are taking this opportunity to renew our request that the administrative changes we have proposed be incorporated in the Agency's review proceeding.

The proper approach to the review of the VC standard is dictated by statutory, executive and judicial guidance. Section 112 of the Clean Air Act, 42 U.S.C. § 7412, provides for national emission standards for hazardous air pollutants (NESHAP) that present a threat of increased mortality or serious irreversible illness. Emission standards are to be set to provide an "ample margin of safety." These statutory criteria must be satisfied by comparing data on the health effects of vinyl chloride in the atmosphere at existing levels with data showing that a reduction in emissions would remedy significant adverse health effects.

Under section 2(a) of Executive Order 12291, a review of existing regulations must be based on "adequate information

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concerning the need for and consequences of the proposed government action." Adequate information, as the order plainly states, includes the potential benefits and costs of regulatory action. Indeed, regulatory action shall not be taken unless the potential benefits outweigh the potential costs. Id. § 2(b).

The benefits, if any, from further reductions in VC emissions must be reflected in monitoring and health effects data. Any review of technology or engineering feasibility must be predicated on studies that demonstrate the health effects on the general population of current levels of vinyl chloride in the atmosphere. It is only by such inquiry that potential benefits can be estimated. The material in your February letter does not meet these criteria.

Our comments on draft Chapter 6 are presented first and followed by comments on the TRW Report.

A. "CHAPTER 6: MODEL PLANTS AND
REGULATORY ALTERNATIVES"

According to your letter, Chapter 6 and the revised TRW Report "will form the basis for analysis of the economic, environmental, and health impacts of any change to the standard." Given the general nature of draft Chapter 6, it is difficult to deter-

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mine how the Environmental Protection Agency (EPA) will utilize the list of regulatory alternatives. At a minimum, EPA should calculate the current or expected level of vinyl chloride monomer (VCM) emissions and compare it to the level of emissions, ambient exposure, and resultant health effects that would arise from application of each of the regulatory alternatives. The draft chapter does not provide a basis for choosing an alternative since neither the cost nor benefits of the alternatives are adequately developed.

1. Model Plant Size

The model for new ethylene dichloride (EDC) plants uses a design capacity of 400,000 megagrams (Mg) per year (880 million pounds per year). Given the size of new facilities, we believe that this figure should be doubled or tripled to 800 or 1,200 gigagrams (Gg)/yr (1.76 or 2.6 billion pounds per year).

2. Offgas Heating Value

The offgas heating values for emissions shown on Tables 6-1, 6-2 and 6-3 indicate that the heating value of incinerated emissions remains the same or increases in relation to unincinerated emissions. Post-incineration heating values should approximate zero.

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3. Annual Operating Hours

The annual operating hours for EDC plants is given as 8,760 hours per year or 24 hours per day, 365 days a year. This 100% operating figure is unrealistic. A better figure would reflect operation at 90% or 7,884 hours per year.

4. Plant Locations

Deer Park, Texas and Baton Rouge, Louisiana are presented as representative of potential locations for new plants. In our judgment, new plants are most likely to be built in remote areas. The newest plant to be constructed is located in Point Comfort, Texas. Another plant is schedule to be built in Convent, Louisiana. Both of these are rural locations and would serve as more appropriate locations for dispersion modeling.

5. Backup Incinerator

On page 6-2, it is assumed that emissions are combined and controlled by a single incinerator. However, typical plant configurations include a second, on-line backup incinerator. The use of a backup incinerator has obvious implications when calculating the cost of controlling emissions. We suggest that

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Chapter 6 be modified to indicate that backup incinerators are normally required.

6. Fugitive Emission Characteristics

On page 6-5, the text refers to three plants producing 1,1,1-trichloroethane. The draft states that "any new plants built in the future would be expected to exhibit emission characteristics similar to these existing plants." This statement may be overly inclusive because at least one of the plants was built in the 1940s. Moreover, other air emission regulations controlling the amount of volatile organic compounds (VOCs) would tend to reduce the amount of fugitive emissions from new facilities.

7. Regulatory Alternatives for New EDC/VC Plants

On page 6-8, the draft lists three regulatory alternatives for new EDC/VC plants. These are: retaining the existing level of control, requiring incineration of the oxychlorination vent or ceasing operations. In considering these regulatory alternatives, the Agency should be mindful of existing EPA regulations that require the incineration of oxychlorination emissions in the absence of any particular requirement in the vinyl

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chloride standard. The pertinent regulatory categories are: prevention of significant deterioration (PSD), offset requirements in nonattainment areas, and best available control technology (BACT) requirements for some state construction permits.

B. REVISED TRW REPORT

Chapter 1

Page 1-3, Line 23: The draft report states that the efficiency of VC reduction in flares has not been determined. In proposing rules to limit VOC emissions from petroleum refineries, the Agency has characterized in-place smokeless flares as being 98% or more efficient in reducing VOC emissions. 48 Fed. Reg. 29,291 (Jan. 4, 1983). The Agency has sponsored a flare efficiency study by John Zink Company that has measured the efficiency of flares and found it to be greater than 99+%. B.C. Davis, "A Flare Efficiency Study" Paper 10-C presented at the AIChE March 1983 meeting in Houston, Texas (reporting on the Zink Study) (copy enclosed). This study and other Agency data should be referenced here and in Chapter 4.

Page 1-4, Line 2: Relief valve discharges that could not have been avoided are permitted by the VC Standard. Ex-

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amples of some of the causes of such discharges have been provided previously to the Agency. See letter from SPI's counsel (G. Baise) to EPA (D. Goodwin), dated Feb. 15, 1979. Nevertheless, because of the enforcement staff's subsequent interpretations, we agree with the need for a more realistic definition of what constitutes an "emergency" relief valve discharge.

Page 1-6, Line 9: The premise of the leak detection section of the current standard is site specificity. EPA recognized that each plant is unique and that leak detection programs need to be tailored to the individual site. This conclusion still is valid.

A major reason for variability among the leak patrol programs was the lack of response by EPA regional offices to the proposals submitted by the operators. Individual companies were left to their own resources under a short time frame for developing these programs.

Page 1-7, Section 1.11: The draft summary should be modified to emphasize the impact of other regulatory requirements. New and modified VC emission sources undergo detailed reviews to obtain permits that frequently result in best available control technology (BACT) or lowest achievable emission rate (LAER) controls more stringent than those in the standard.

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The summary also should discuss the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund), the Occupational Safety and Health Administration (OSHA), the Consumer Product Safety Commission (CPSC), the Food and Drug Administration (FDA), and state activities. The implication that delegation of NESBAPS authority to states will reduce VC emissions is unsubstantiated.

Chapter 2

Page 2-1, Line 5: The proposed policy for airborne carcinogens is cited in conjunction with EPA's review of the existing VC standard. The proposed policy was published in October 1979, and was the subject of extensive public comments that cast serious doubt on many of its provisions. Indeed, EPA's then-Acting Administrator testified before Congress that "[i]t is uncertain whether or not this proposed policy would survive challenge in the courts." Inside EPA, May 8, 1981 at 8. EPA has not yet responded to the comments and is in the process of changing the proposed policy. We object to a review based on a proposed policy that has not been finalized, that is being changed, and that EPA believes may be illegal.

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We also object to the application of the discredited philosophy of the proposed carcinogen policy to this review. The proposal, for example, endorses efforts to reduce emissions to a zero level without regard for the resulting costs or benefits. As a result, the present review study has been restricted to engineering feasibility. It has ignored all other aspects of the situation based on adherence to a proposed guideline that will not be adopted in its current form.

Page 2-2, Section 2.2.1: The report indicates that TRW reviewed EPA's October 1975 standard support document and information submitted to EPA under Section 114 of the Clean Air Act. TRW should have reviewed also the written comments and the hearing transcripts on the existing standard, the proposed amendments to the existing standard (42 Fed. Reg. 28,154 (1977)), and other pertinent documents.

Page 2-11, Line 34: The reasons for lost production capacity include (1) the time to purge equipment prior to opening and (2) the time to open equipment for maintenance and all other purposes. Lost capacity is not solely attributable to reactor cleaning and purging time, as the draft states.

Page 2-12, Line 20: Data are not shown for the statement in the draft correlating compliance levels with automation

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and computerization. See also the letter from SPI's counsel (G. Baise) to EPA (D. Goodwin), dated February 15, 1979, on the subject of some causes of relief valve discharges.

Chapter 3

Page 3-1, Section 3.1: The draft should state that the process descriptions in this Chapter are extremely simplified. They do not adequately reflect the complexity of the processes or the difficulties of compliance.

Page 3-32, Line 25-30: This passage is an unclear attempt to paraphrase the provision of sections 61.65(b)(3)(v) and 61.65(b)(4). A better statement might read:

Leakage from reactor agitator seals and relief valves are addressed by subsections 61.65(b)(3)(v) and 61.65(b)(4), respectively. Agitators must have double-mechanical seals or the equivalent. Leakage from relief valves must be minimized by installing a rupture disk between the equipment and the relief valve or utilizing an equivalent method.

Page 3-35, Line 12: Use of chemical treatment has been successful in preventing polymer build-up, but only in certain equipment. While the subject is mentioned, the significant costs associated with chemical treatment are not given adequate consideration.

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Chapter 4

We agree that the industry is performing better than required by the standard, and we believe that actual emissions are less than that reflected in this chapter. For example, the "estimated actual emissions" column in table 4.4 (for a typical PVC suspension plant) should be revised, for the reasons discussed below, to include at most the following amounts.

<u>Source</u>	<u>Estimated Current Emissions (kg/Yr)</u>
Primary control	68
Relief valve discharges	4,780
Combined sources after stripping	13,600
Fugitive emissions	25,500
Reactor opening loss	460
	44,408

This represents a reduction of 93,632 kg/yr below the level of emissions permitted under the present standard, about a 67% improvement.

Incinerators normally perform at emission levels of well below 1 ppm, so a figure of 10% of the allowable emission is taken for primary control emissions.

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The reactor opening loss in Table 4-4 was calculated on an average of 3.5 batches between openings at 8,800 ppm residual VC based on EPA's 1975 Standard Support document. Various improvements in purging methods and decreases in opening frequencies lead us to believe that average actual losses are less than a quarter of that model. For purposes of estimating reactor opening loss emissions, we suggest assuming that reactors are opened after every 10 to 12 batches.

Page 4-1, Line 9: The draft states that EDC/VCM plants using pure oxygen as a feedstock have reduced emissions below those set by the standard. While this may be correct, it is unfair not to mention that air-based EDC plants also control emissions to levels below the standard. Table 4-3 on page 4-5 presents data showing that actual emissions from airbased plants are substantially lower than regulated emissions. To prevent misleading implications, both types of plants should be addressed.

Page 4-2, Table 4-1: "Containment" is listed as a control technology for reactor relief valve discharges. This is not discussed further. Even several other comments in section 4.2.3.3 lead us to believe that this may reflect a misunderstanding of the process.

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Page 4-5, Table 4-3: The estimated actual emissions from the primary control are shown as being equivalent to the regulated emissions. This must be incorrect, particularly in light of the statement on page 4-1, lines 8-9, that actual emissions are "well below the 10 ppm level." A more appropriate figure for actual emissions is 316 kg/yr, not 3160 kg/yr.

Total emissions should be changed from 40,110 kg/yr to 37,266 kg/yr. Therefore, estimated actual emissions are approximately 59% below those permitted by the standard.

Page 4-6, Table 4-4: As mentioned above, it is unfair to list the estimated actual emissions for the primary control and the reactor opening loss to be equivalent to the regulated emissions. As can be easily determined from a review of industry's semiannual reports, both primary control and reactor opening loss emissions are substantially less than the regulated levels. These numbers should be revised to 68 kg/yr for the primary control and 460 kg/yr for reactor opening loss. Total emission figures should be changed to 44,400 kg/yr and 105,608 kg/yr, respectively.

Page 4-12, Line 4: The use of flares should not be discouraged simply because they cannot be tested or monitored reliably during operation.

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Page 4-12, Line 7: As noted above, EPA has information on flares showing greater than 98% efficiency.

Page 4-13, Section 4.1.5: We know of very few plants which are using carbon adsorption successfully now. Problems with impurities and comonomers, especially vinyl acetate, are serious. In any event, the buildup of methyl chloride requires a purge to an incinerator, which, if present, may as well be used for the entire waste stream.

Page 4-19, Line 5: The statement that "with the change to larger reactor systems, the potential quantity of emissions from the relief valve is increased" is incorrect. No data are provided to support this statement. Indeed, page 4-23, section 4.2.3.1 indicates that "newer reactor systems provide . . . fewer emissions to the atmosphere" and that larger reactors result "in a lessened probability of relief valve discharges." Moreover, the first paragraph on page 4-42 states that one firm had "no reactor relief valve releases for 31,000 charges at their large reactor facilities." These citations refute the statement made on page 4-19.

In addition, the word "potential" describes the possibility of an event. It may be that the amount of a potential release from a large reactor could be greater than that of a

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small one, but the probability of such an event is likely to be less. Most large reactors are in newer plants with more modern safeguards so that the potential is lessened.

Page 4-20, Table 4-5: More complete data could be assembled from existing reports submitted to EPA.

Page 4-27, Line 34: An increase in temperature to 72°C may or may not result in a relief valve discharge. This depends on the rupture disk/relief valve settings, which are a function of the design pressure of the reactor. Some polymerizations are run at temperatures in excess of 72°C.

Page 4-28, Line 13: The draft incorrectly implies that a gasholder is the solution to a multitude of problems but does not "conclude" that gasholders are economically feasible.

Page 4-30, Line 33: The TRW report tends to overstate the value of an auxiliary venting system by failing to adequately consider plugging problems that create concerns for safety.

Page 4-33, Line 30: A major problem with water-sealed gas holders is the position taken by EPA that the seal water was a source of VC and that the open channel had to be controlled. The disadvantages of gasholders are generally understated.

Page 4-36, Table 4-10: The table should indicate that the figures are in December, 1979, dollars.

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Page 4-39, Line 1: We support TRW's conclusion that a safety relief device vented directly to the atmosphere will always be required, no matter what system or combination of systems is required. We concur with the statement on page 4-17 that safety regulations and insurance companies require and strictly enforce the use of safety relief devices on pressurized equipment to avoid any explosion hazard. We would, however, object to the report's presumption that gasholders will stop and contain emergency discharges.

Page 4-48, Line 4: The sole purpose of a gasholder in any recovery system is to provide surge capacity before the compressors. It is not, as so broadly stated, for venting compressor relief valves, pumps, weigh scales, condensers and knock-out tanks.

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Page 52, Line 23: The report states that stripping to lower RVCM levels is prompted primarily by the VC standard. This statement makes no sense because, if it were true, manufacturers would not be stripping some resins to levels below the current requirements. Actually, other marketing reasons prompt producers to strip some resins below the levels set by the regulation. See the stripping levels given in Table 4-11 on page 4-55.

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Page 4-55 and 4-56, Table 4-11: This table is only partially complete. Since industry has submitted this data to EPA, the data should be included for all plants to represent 100% of production.

Page 4-79, Line 26: VCM calibration gases are certified by the manufacturer. As a check, the plant can run a comparison test with their calibration gas. Analysis by Method 106 is unnecessary.

Chapter 5

Page 5-3, Line 11: Inprocess wastewater stripper effluent does not need continuous monitoring or daily sampling when it can be historically shown that the effluent is well below the 10 ppm level.

Page 5-3, Line 15: It is stated that "compliance with the regulations has drastically increased the quantity of in-process wastewater discharged from many plants." A reference is given for this statement; however, no details supporting the claim are given. Supporting details should be provided or this statement should be deleted.

Page 5-4, Line 8: The report suggests that monthly or semiannual averaging of reactor opening loss would apply mainly

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to bulk processors and other plants stripping in the reactor. There is no reason for limiting this concept to bulk processors and other plants stripping in the reactor. It can and should be applied to all reactor openings.

Page 5-6, Line 20: New source performance standards (NSPS) should not be applied to existing sources unless they become new sources through plant modification or expansion.

Page 5-7, Section 5.9: The discussion concerning dryer emissions is somewhat misleading. The example given is based on dryer emissions for a new plant being equivalent to the current standard RVCM level of 400 ppm. The example given is based on one application for a prevention of significant deterioration (PSD) permit. Many recently issued PSD permits (not applications) specify RVCM levels substantially less than those currently allowed by the existing standard. It would be interesting to know the permit RVCM level for the referenced application.

This discussion implies that indirect drying reduces emissions. This is incorrect and misleading. Not all RVCM is emitted from the dryer exhaust as stated. Some also emanate from the blend tanks and silos, while some remain in the resins. The figures also improperly assume that the resins will be at the 400 ppm RVCM level, as opposed to actual, current levels.

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EPA considered regulating sources after the stripper during initial development of the standard. The required stripping levels were selected, in part, to assure that subsequent emissions would not exceed the 10 ppm level. In addition, SPI comments on the original standard reflected an industry preference to control emissions through stripping rather than through control of post-stripping emission sources. However, the draft report fails to note that the present standard gives an operator a choice between stripping and other control methods. See 40 C.F.R. § 61.64(e).

Page 5-7, Line 5: The prevention of significant deterioration (PSD) application should be identified.

Page 5-7, Line 8: Indirect drying would have little effect on emissions here. It is obsolete technology and does not apply to PSD situations.

Page 5-7, Line 13: The draft should be factual and not judgmental. The suggested regulation of blend tanks and centrifuges is subjective and unsupported by referenced data.

Page 5-8, Section 5.11: The premise of the existing leak detection section of the VC standard is site specificity. EPA, however, did not provide guidance for the basic elements of a leak detection program.

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Page 5-9, Line 34: Back-up devices and emergency vents are typically operated less than 200 hours per year. This does not justify the expense for the continuous monitoring equipment suggested.

Chapter 6

Page 6-6, Line 7: OSHA regulations apply to the transportation of vinyl chloride. 29 C.F.R. § 1910.1017(a)(3). We understand that rail and tank cars are purged to control devices.

Page 6-7, Section 6.3.4: An earlier Battelle Report on VCM emissions from a landfill was a major factor in EPA's August 1979 proposal to list as hazardous waste PVC sludge and other related wastes. SPI submitted comments to EPA's Office of Solid Waste, pointing out that (1) the Battelle information was out of date, (2) the Battelle Report was considered when EPA prepared its NESHAP regulation for VCM, (3) subsequent industry testing shows the existence of substantially lower concentrations of VCM at landfills, and (4) the NESHAP stripping requirements have resulted in lower RVCM levels in PVC waste. Further consideration of this issue is unwarranted.

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Chapter 7

Page 7-1, Section 7.1: In general, the impact of other regulations is understated in this chapter.

Page 7-3, Section 7.2.1: The viability of EPA's airborne carcinogen policy is highly questionable, as noted previously.

Page 7-7, Line 34: Implementation of the California South Coast Air Quality Management District (SCAQMD) requirements would present a great hardship to industry. This standard is not based on verified, scientific evidence and should, therefore, not be implemented in any new areas.

Page 7-12, Line 16: Ambient water quality criteria for vinyl chloride was published by EPA in October, 1980. 45 Fed. Reg. 56,628 (Oct. 1, 1979). The reference to effluent guidelines should be changed to 48 Fed. Reg. 11,828 (Mar. 21, 1983).

C. CONCLUSION

EPA should proceed to develop the needed administrative changes in the current standard on an expeditious basis. We are available to assist with this work.

Any substantive revision of the VC standard must be based on the development of health effects data that demonstrates

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a public health benefit from reduced emissions. Any revision of the standard not supported by new health effects data would violate the "ample margin of safety" test of the Clean Air Act, the provisions of Executive Order 12291, and judicial guidance.

EPA should consider the need for additional field monitoring after available data are evaluated. Certainly, decisions to bring further activities under regulation cannot be supported without actual measurements. A health effects study will also be required.

SPI appreciates this opportunity to comment on the vinyl chloride review study and is willing to discuss these points with EPA in greater detail at any time.

Very truly yours,



G. R. Munger
President

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Enclosures