

JOSEPH E. KELLER
JEROME H. HECKMAN
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WILLIAM H. BORGHESE, JR.
ROBERT R. TIERNAN
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DAVID L. HILL
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DEBORAH SHUR TRINKER
C. DOUGLAS JARRETT
EDWARD L. KORWEK
ROBERT L. FLESHNER
JONATHAN P. LEVINE
SHEILA A. MILLAR

LAW OFFICES
KELLER AND HECKMAN
1150 17TH STREET, N.W.
SUITE 1000
WASHINGTON, D.C. 20036

TELEPHONE
202-457-1100
CABLE ADDRESS "KELMAN"
WRITER'S DIRECT DIAL NUMBER
(202) 457-1116

May 7, 1981

* OHIO BAR ONLY

Don R. Goodwin, Director
Emission Standards and
Engineering Division (MD-13)
Environmental Protection Agency
Research Triangle Park, North Carolina 27711

Re: Review of the National Emission
Standard for Vinyl Chloride

Dear Mr. Goodwin:

Following our meeting of April 9, 1981, the Society of the
Plastics Industry, Inc. (SPI) submits these comments on the
draft report prepared by TRW, Inc. entitled "Phase I Review
Study of Vinyl Chloride National Emissions Standard." */

*/ 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. Its 1400 member companies and
individuals and 49 operating units include those 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. The majority of its
members are the processors and converters of the plastic resins
into end products which represent 75% of the dollar volume
sales of plastics in this country. SPI's membership also
represents 95% of all plastics materials and machinery
manufactured in the United States.

These comments were prepared by SPI's PVC Safety Group.

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Two central points that we made at the meeting are repeated here. First, any review must necessarily be based on a determination of the present levels of vinyl chloride in the atmosphere and what beneficial health effects, if any, would derive from reduced emissions. Second, we agree that the present standard could be improved through amendment of its administrative provisions.

The comments begin with a general discussion of the scope and direction of the review study (pages 2-8). A page-by-page critique is presented in section II (pages 9-27). Section III contains a list of recommendations (pages 28-29).

I
GENERAL COMMENTS

1. Need for Health Effects Analysis

The Environmental Protection Agency (EPA) is presently reviewing the National Emission Standard for Vinyl Chloride. 40 C.F.R. §§ 61.60-61.71. According to the TRW draft report and your representations, this review was prompted by EPA's proposed airborne carcinogen policy. 44 Fed. Reg. 58642 (1979). While we seriously question the propriety of basing a review of the vinyl chloride (VC) standard on a proposed policy, we do not disagree with the concept of periodic review of existing standards. Indeed, such a review may be required by section 3(i) of Executive Order 12291. 46 Fed. Reg. 13195 (1981).

We do object to the application of the discredited philosophy of the proposed carcinogen policy. The proposal, for example, endorses efforts to reduce emissions to a zero level without regard for the resulting costs or benefits. Other assumptions in the proposal are similarly misguided.

The present review study has been restricted deliberately 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.

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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 justified through data showing the health effects on the general population of vinyl chloride in the atmosphere at existing levels and 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 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 a reduction in VC emissions must be reflected in health effect data. Any review must be based on studies that demonstrate the health effects of varying levels of vinyl chloride in the atmosphere on the general population. It is only by such inquiry that potential benefits can be estimated.

In a similar situation, the Supreme Court has vacated an agency rule that was not supported by evidence that tightening of the standard would result in the required health benefits. Industrial Union Department, AFL-CIO v. American Petroleum Institute, ___ U. S. ___, 100 S. Ct. 2844 (1980) (Benzene case). There, the Occupational Safety and Health Administration (OSHA) based its reduction of the permissible exposure limit for benzene from ten parts per million (ppm) to one ppm on a series of assumptions that the number of leukemia cases might be reduced. The court noted that OSHA did not base the stricter limit on the basis that exposure to ten ppm would cause leukemia while exposure to one ppm would not. Id. at 2860.

The series of assumptions on which OSHA acted in the Benzene case parallel EPA's proposed carcinogen policy. The policy, which was formulated without the benefit of the Supreme Court's guidance, can no longer be considered a valid basis for reducing emission levels in the absence of defensible health effects data.

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2. Inadequacy of Currently Planned Risk Assessment

Based on the TRW draft and our meeting of April 9, 1981, there does not appear to be any EPA effort to develop the necessary monitoring and health effects data. In fact, the Agency appears to be ignoring existing studies. This destroys any value which an engineering study alone might have.

The Agency will be unable to evaluate the potential benefits of any proposal unless it is able to compare those changes to resulting health improvements for the nation relative to present conditions. Present conditions must be determined by actual measurements. There are no monitoring programs underway as a part of the vinyl chloride review, and, although we understand some such efforts have been made previously, there has been no attempt to obtain or interpret this data.

We do not believe that another risk assessment by the Carcinogen Advisory Group (CAG) will be useful unless, as a minimum, it is based on a thorough review of the literature. To be adequate, this review should include a new effort to obtain epidemiological data for the population surrounding facilities that handle or produce vinyl chloride. Moreover, such a risk estimate, if made, can only be interpreted in light of actual measurements. Without these efforts, any estimates will be sheer speculation.

The absence of any effort to develop new monitoring data or health effects studies, coupled with a disregard of existing studies, presents serious questions concerning the Agency's regulatory intent.

3. Administrative Changes Merited

As distinguished from any potential health or engineering programs, there are several administrative changes in the reporting, record keeping and definitional sections of the vinyl chloride standard that merit prompt attention. Potential areas for review might include frequency of reporting, averaging of reactor opening losses and stripping levels, and clarification of such terms as "emergency" releases. Improvement in the administrative provisions would reduce the burden to both industry and the Agency. We stand ready to discuss these administrative areas with the agency at any time.

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4. Unwarranted Focus on Vinyl Chloride

We do not believe that the Agency can justify further expenditure of government or industry resources based on current vinyl chloride emissions and the absence of new health data or technology. Given its current regulatory status, we cannot believe that EPA considers vinyl chloride to present a hazard warranting significant attention. The Agency has itself prepared a list of presently unregulated substances that merit review. Moreover, the specific impetus of the proposed carcinogen policy has been removed.

In particular, section 2(e) of Executive Order 12291 directs that agencies set their regulatory priorities with the aim of "maximizing the aggregate net benefits to society." Given the number of substances which warrant review by EPA under its own programs, the expenditure of agency resources on vinyl chloride appears plainly disproportionate to maximizing the public health.

5. Withdraw of the Vinyl Chloride Standard

In response to the requests by the Presidential Task Force on Regulatory Relief, SPI has suggested that the vinyl chloride standard be withdrawn. This proposal is based on our belief that withdraw of the standard would not result in any adverse health effects. Our belief, in turn, is based on current industry practice, the operation of the OSHA vinyl chloride standard and other regulatory constraints. A copy of that submission is attached to these comments as Appendix "A".

6. Altering Review Direction

Absent withdraw of the vinyl chloride standard, the agency's current review should be redirected towards: improving the administrative provisions of the standard, monitoring of vinyl chloride in the atmosphere, and development of health effects studies.

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7. Lack of Data and Citations in the Draft Report

As noted in the specific comments in section II, the data base of the TRW report is incomplete. It does not reflect adequately the large amount of information available through the regional EPA offices or other branches of the agency. Several pertinent reports and studies are omitted.

This study generally has failed to avail itself of resources within EPA, other agencies and industry. Much of the data presented are not referenced properly. If the agency is serious about performing a comprehensive review, these faults must be remedied.

II
SPECIFIC COMMENTS

Chapter 1

<u>Page</u>	<u>Line</u>	<u>Comment</u>
1-1	9	TRW states that the impetus for this review is EPA's proposed airborne carcinogen policy. As noted in our general comments, reliance on the proposed policy is unreasonable in light of existing executive and judicial guidance. Indeed, proceeding to regulate on the basis of a proposed policy is simply out of order. Any review must be based on health effects. This is not the case.
1-1	23	This sentence should be qualified. The VC standard does not apply to production of ethylene dichloride (EDC) by the direct chlorination process. 40 C.F.R. § 61.60(a)(1).
1-2	5	The report claims that changing from air to pure oxygen as a feedstock in the oxychlorination process results in reduced emissions from the oxychlorination vent. Section 3.2.2. is cited, but it contains no data substantiating this claim. For such a claim to be made specific data on the amount of VCM contained in the oxychlorination vent from the air process should be compared with the amount of VC from the pure oxygen process.
1-3	23	The flare efficiency study by John Zink Company must be considered. We understand that this Agency-sponsored study has measured the efficiency of flares and found it to be greater than 99.9%. This study should be referenced here and in Chapter 4.
1-4	2	We agree with the need for a more realistic definition of what constitutes an "emergency" relief valve discharge.
1-5	4	The draft states that continuous stripping technology for dispersion resins is not as advanced as for suspension resins. This

statement by itself, and in conjunction with the following parenthetical phrase, implies that the industry has not attempted to develop stripping systems for dispersion resins to the same extent as for suspension resins. This is incorrect.

Industry has devoted great efforts toward the development of dispersion resin stripping technology. But, dispersion resin is simply more difficult to strip. Nonetheless, great advances have been made in dispersion resin stripping technology as evidenced by industry's ability to meet the existing RVC requirements.

The draft sentence should be modified accordingly. The parenthetical phrase should be deleted entirely. There is no evidence that the demand for dispersion resin has adversely effected the development of stripping technology.

1-5 15 The sentence noting that two bulk resin processors reported 6-month average stripping levels below 40 ppm should be deleted. This statement can be very misleading to the uninformed reader. The existing standard is based on a 24-hour average, not a 6-month average. If bulk resin stripping performance is to be included, it should be done on a 24-hour basis. At the moment, a 6-month average is not relevant.

1-5 26 The statement that fugitive emissions represent "one of the larger contributions to VC emissions" is not substantiated by data. See the discussion in section 4.4, pages 4-58 and 4-59. Data base for this statement must be given. Original 114 letters from industry were very poor; additionally, EPA stated that all non-accounted for VC was fugitive. Thus, "fugitives" include weighing and computational errors.

1-6 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.

A major reason for variability among the leak patrol programs was 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.

1-6 21 The draft notes that control (reactor purging) selection is based on the polymerization process used. This statement should be deleted. No evidence in this document substantiates that control selection for reactor opening loss is based on the polymerization process used. There is evidence that several different control techniques are employed. The selection is based primarily on operating preferences and economics.

1-7 18 It is noted that "new unregulated sources" include solid waste drying facilities and disposal sites (landfills). This statement is misleading and incorrect. Polyvinyl chloride (PVC) solid waste is regulated through the allowable residual vinyl chloride monomer (RVCM) levels. This is not a new source; solid waste was present during the initial development of the standard.

EPA considered further regulation of PVC wastes in the development of the hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA). EPA proposed that PVC solid waste be listed as a hazardous waste, but in their final promulgation--after taking into account comments submitted--chose not to designate PVC sludge as a hazardous waste.

A Battelle Report on VCM emissions from a landfill was a major factor in EPA's August 1979 proposal to list PVC sludge and other related wastes as hazardous waste. SPI submitted comments to EPA's Office of Solid Waste that the Battelle information was out of date and was considered when EPA prepared its NESHAP regulation for VCM. Subsequent industry testing shows the existence of substantially lower concentrations of VCM at landfills, and the NESHAP stripping requirements have resulted in lower RVCM levels in PVC waste. A copy of these comments are attached as Appendix "B".

The data on emissions from the unidentified landfills should be presented here or in Chapter 6.

Chapter 2

<u>Page</u>	<u>Line</u>	<u>Comment</u>
2-1	5	Again, the proposed policy for airborne carcinogens is cited as the impetus for reviewing the existing VC regulation. We repeat here our comments as to the inapplicability of the proposed policy.
2-1	17	It is noted that industry was allowed two years to incorporate the necessary controls required by the existing standard. This statement is misleading. Only a portion of industry was allowed 2 years for compliance, and that extension was only for a portion of the standard. Specific waivers were required in each case. The draft sentence should either be deleted or revised. Industry was not allowed two years for compliance in all cases.
2-10	Table	Seven PVC plants are listed in New Jersey; 2-3 the correct number is six. The error is from Table C on page C-2. There is no Piscataway plant.
2-11	34	The reasons for lost production capacity include (1) the time to purge prior to opening and (2) the time to open reactors for stripping and all other purposes. Lost capacity is not solely attributable to cleaning time, as the draft states.
2-12	11	The report states that changing from air process to oxygen process in the EDC process makes control by combustion "much easier." No specifics are provided to support this statement. We believe this statement to be inaccurate and misleading. While it is true that the oxygen process produces a lower volume emission to be combusted, there is no evidence that this makes the combustion process easier. It merely makes the required combustor smaller, and that is not necessarily an advantage. Total plant configuration and steam needs must be considered in choosing between oxygen and air processes.

2-12

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Data is not shown for statement correlating compliance levels with automation and computerization. We contend that plants without automation and computerization are complying as well as the others. A person is still the best control instrument.

Chapter 3

The process descriptions in this Chapter are extremely simplified. They do not reflect adequately the complexity of the processes or of the difficulties of compliance.

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| 3-10 | 30 | The draft states that no new emission data has been obtained from EDC/PVC plants since the regulation was promulgated. This is incorrect. Data has been presented for permits and new plants. |
| 3-17 | 24 | The practice of inhibiting VC polymerization with phenol was halted several years ago. A level of 100 ppm of phenol was never used. Normal levels were between 5 and 15 ppm. No reference is provided. |
| 3-18 | 16
(Section 3.4.3.) | The sentence "Many of the vessels were open to the atmosphere prior to promulgation of the VC regulations . . . ," is incorrect and misleading. "Many" were neither open nor opened to the atmosphere. Certainly storage spheres, storage tanks, weigh tanks, gas holders, and knockout pots were not open or opened to the atmosphere. Wastewater storage tanks may have been opened, if they even existed at that time, and surge tanks were if this term refers to blend tanks. The cited statement should be modified. |
| 3-20 | 34 | The agglomerates referred to are more usually formed in the reactor, not the dryer. Generally, the larger agglomerates must be removed before the stripper, a problem under the present standard, but some smaller ones make their way to the dryer. |
| 3-22 | 15 | Strong agitation is not possible in latex production; it must be much milder than in suspension to avoid coagulation. This may be a reference to the homogenization step used in mixing monomer and dispersion agents in some processes, but this occurs before the reactor. |
| 3-28 | 2 | The statement that "VC concentrations that are emitted when the Po-Po reactor is opened must be measured in order to meet the ROL standard" is incorrect. These emission may be calculated rather than measured, and the standard provides for such. |

- 3-28 25 The sentence stating that "The copolymer formed is not soluble in the solvent but forms a homogeneous solution" should, of course, read "The copolymer is soluble and forms" If not soluble, how can solution be formed? The authors do not understand the process.
- 3-32 1 The recovery process for solution resin is more properly termed precipitation, not coagulation.
- 3-32 29 Contrary to the draft, the VC standard does not require that relief valves be connected to a control device. This is never done; insurers will not permit it. The correct statement appears on page 3-35, line 17, where it is stated that relief valves open directly to the atmosphere.
- 3-34 24 Liquid VC is very resistant to reaction with water to form HCl. Some HCl is formed by thermal decomposition of the PVC and other chemical reactions that occur in the reactor, but no significant amount comes from VC and water directly.
- 3-34 28 Change "compounding resins" to "compounding ingredients." The "flakes" fail to absorb plasticizers, stabilizers and other compounding ingredients, not "compounding resins."
- 3-35 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 give adequate consideration.

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Chapter 4

The text of this chapter, and tables 4-3 and 4-4, incorrectly state that the standard requires zero discharge for relief valves. The standard requires no preventable discharges. See, 40 C.F.R. §§ 61.65(a) and (b)(4). It is implicit in the standard that there will be discharges both from the relief valve when it operates as designed and from manual venting that attempts to prevent relief valve actuation. 40 C.F.R. § 61.64(a)(3). This is a fundamental error throughout the report and it must be corrected.

We agree that the industry is performing better than required by the standard, and we believe that actual emissions are drastically less than reflected in this chapter. For example, we would revise table 4.4, as follows, for a typical PVC suspension plant:

<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	<u>460</u>
Total	44,408

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

The estimated fugitive emissions are based on a recent study by B.F. Goodrich. That study is cited in the report on page 4-59, lines 7-16, but incorrect figures are given. The correct figures are set forth below in the comments for page 4-59.

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. Various improvements in purging methods and decreases in opening frequencies lead us to believe that the actual losses are less than a quarter of that model. At present, reactors are opened after every 10 or 12 batches.

The net improvement over the "regulated emissions" is approximately 245 megagrams per year, or about an 84% reduction below the level of emissions permitted under the present standard.

<u>Page</u>	<u>Line</u>	<u>Comment</u>
4-1	7	The statement implies that the current standard requires zero relief valve discharges. This is incorrect and should be changed to reflect the actual requirements of the standard.
4-1	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 (although Table 4-3 on page 4-5 does not indicate such), it is unfair not to mention air-based EDC plants, which also control emissions to levels below the standard. Table 4-3 on page 4-5 presents data showing that actual emissions from air-based plants are substantially lower than regulated emissions. To prevent misleading implications, both types of plants should be addressed.

- 4-2 Table "Containment" is listed as a control
4-1 technology for reactor relief valve
 discharges. This is not further discussed.
 However, several other comments lead us to
 believe that this may reflect a
 misunderstanding of the process.
- 4-5 Table The current standard for relief valve
4-3 discharges is not zero, as listed in the
 table. This should be modified.
- The estimated actual emissions from the
 primary control are equivalent to the
 regulated emissions. This must be incorrect,
 particularly in light of the claim 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 74% below
 those permitted by the standard.
- 4-5 footnote Should refer to Table 4-7 on page 4-22. In
 "c" addition, the data in Table 4-7 does not
 readily convert to the figure given in Table
 4-3.
- 4-6 Table As mentioned above, it is unfair to list the
 4-4 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 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.
- The figure for estimated actual fugitive
 emissions should be changed from 104,000
 kg/yr to 25,500 kg/yr. See comments on page
 4-59, below.
- Total emission figures should be changed to
 44,408 kg/yr and [105,608 kg/yr]
 respectively.

- 4-6 footnote "c" Should refer to Table 4-6 on page 4-21. The data in Table 4-6 does not readily convert to the figure given in Table 4-4.
- 4-6 footnote "d" Estimate of emissions after stripping is based on incomplete data. The semiannual reports should be reviewed and incorporated.
- 4-6 footnote "f" The last line should be corrected to read "EPA 1975 estimates after regulation."
- 4-7 16 The statement that "the current standard requires zero emission levels during periods of control equipment shut down. . ." is incorrect. The current standard does not require zero emissions during times of control equipment shutdown. It does not allow exemptions for loss of control equipment, but that only means that emissions may not increase because of equipment failure (after allowing for hourly averaging as provided in the test method). There is no zero requirement in the standard.
- 4-11 34 Should be corrected to read "One monomer plant." Flares are not used for reactor discharges.
- 4-12 4 The use of flares should not be discouraged simply because they cannot be tested or monitored reliably during operation.
- 4-12 7 We believe that EPA may have information on flare efficiency.
- 4-12 18 The capital cost for the flare stack is grossly understated.
- 4-12 20 The reference cited should read 1978, not 1980.
- 4-12 28-35 We understand that the statement that a flare can handle two reactors is a misquotation of the information given to TRW. That flare is used for process (in the nonpolymer section) relief valves; that is, small valves on lines and not the large relief valves on reactors. This reflects a compounding of the failure to indicate on page 4-11, line 34, that the flare is in a monomer plant and not for PVC reactor discharges.

- 4-13 Section We know of very few plants which are using
4.1.5 carbon absorption 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. Here again, a reference to a
 source for this statement should have been
 supplied.
- 4-16 10 The \$45,000 capital cost and \$1,000 operating
 cost is only for the heat exchanger and
 chiller, not the entire monomer recovery
 system.
- 4-18 9 [Section to be added on history of relief
 valve discharges.]
- 4-18 25 The discussion in section 4.2.2 appears to be
 opinion. A citation to the source should be
 given, along with data to support the
 opinion.
- 4-18 33 Section 4.2.2. claims that the majority of
 relief valve discharges are preventable. We
 contend that the majority of discharges are
 not preventable. They are caused by
 instrumentation failures such as controllers,
 transmitters and automatic switches, other
 mechanical failures, or unpreventable
 operator error. Even with the best operator
 training there will be an occasional,
 unpreventable error that results in a
 discharge. Further, the total amount of VCM
 released during relief valve discharges is
 relatively small when compared to total
 emissions. The unreasonable position which
 assumes that such discharges are preventable
 could eventually require capital investment
 far in excess of any marginal emission
 reduction.
- 4-19 5 The statement that "with the change to larger
 reactor systems, the potential quantity of
 emissions from the relief valve is increased"
 is incorrect. There is no data 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 "when larger reactors

are utilized results in a lessened probability of relief valve discharges." In addition, 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 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.

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| 4-20 | Table
4-5 | More complete data could be assembled from 4-
existing reports submitted to EPA. |
| 4-26 | 2 | The thermal expansion of vinyl chloride between 50 and 150°F is about 13%. That of water in the same range is about 2%. Thus, the statement that "hydroful" conditions may result from a 20% expansion of the "VC liquid charge" appears to be in error. No reference is given for this statement. |
| 4-27 | 23 | The autoacceleration of the polymerization rate begins when the liquid phase is absorbed in the precipitated polymer, which occurs at 25-30% conversion. It continues until 78-80% conversion, then ceases. "Flashing" will not increase the internal pressure. It only occurs because of the equalization of pressure due to the hydraulic head in the liquid charge, and any vapor generated is balanced by condensation or absorption in other parts of the vessel. Further, flashing is a consumer of energy, and thus tends to cool the system. No reference is given for the statements in this section. |
| 4-28 | 1 | 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 temperature in excess of 72°C. |

The volume of the space charged has no bearing on the amount of discharge if a relief valve opens. The amount depends on the propelling force, which is a function of the unreacted monomer present, and many other factors.

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| 4-28 | 17 | The draft incorrectly implies that a gasholder is the solution to a multitude of problems, but does not "conclude" that gasholders are economically feasible. Later discussion of costs do not explain why the gasholder would be sized to contain the relief value discharge of just one reactor. Because simultaneous emergency releases from more than one reactor have occurred, the economic absurdity of requiring gasholders (pages 4-35 to 4-37) is significantly understated. This is explicitly recognized by the statement on page 4-34, line 33. |
| 4-30 | 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. |
| 4-33 | 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. |
| 4-34 | 16 | Should be corrected to read: "One plant <u>manually</u> relieves pressure to the <u>monomer recovery system</u> when a batch is out of control." It is not vented to a gasholder.

The disadvantages of gasholders are generally understated. |
| 4-36 | Table 4-10 | Indicate that the figures are in December 1979 dollars. |
| 4-37 | 13 | In evaluating the \$5 million cost of the 10,000 gallon gasholder, reference should be made to the statement on page 34 that many gasholders would be required. We do consider the \$5 million estimate to be accurate. |

4-39 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 gasholder 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.

4-39 30 Hydraulic testing of a rupture disk before a batch will not prove that it will not fail prematurely, only that it did not fail on that test cycle. Besides being difficult to do accurately and requiring several hours, this test merely adds one more cycle to the disk history and brings its ultimate failure that much closer.

Pressure testing of all reactors prior to charging to detect premature rupture disc failure is unreasonable. Rupture disc failure does not always result in a discharge since there may be a relief valve behind it. The operational procedure of vacuuming the reactor after the high pressure testing would reduce productivity. Premature failures do happen, but with improved disc technology, proper selection of materials and regular maintenance, the possibility of disc failure has been reduced.

The statement that pressure tests can be run on the reactor prior to charging a new batch so as to prevent premature rupture discs failure is followed by procedures used by one plant to insure safe operation during the polymerization reaction. The juxtaposition of these two sentences implies that this one plant pressure tests the reactor prior to charging a new batch. This is incorrect. The paragraph should be rewritten to make it very clear that the reactors and rupture discs are not pressure tested prior to charging each new batch. Pressure testing each reactor prior to charging a new batch is infeasible and any such requirement would have a devastating impact on the industry.

- 4-40 33 Equipment failure is not "prevented" by an emergency generator. An emergency source of power, from whatever origin, can keep some equipment in service if the normal power supply is lost, but equipment failures are not avoided. In addition, many is the emergency generator unit that does not start when needed.
- We find this entire section 4.2 to be confused and containing many minor errors. In particular, "hydroful" conditions are not a primary cause of relief valve discharges.
- They are, as Conoco reported, caused primarily by high temperature excursions which are not controlled by the short-stop system or emergency cooling.
- 4-47 16 The sole purpose of a gasholder in any recovery system is to provide surge capacity between vacuum pumps and compressors. It is not, as so broadly stated, for venting compressor relief valves, pumps, weigh scales, condensers and knockout tanks.
- 4-48 4 General Tire and Rubber Company does not deliberately vent relief valves to the atmosphere. They may deliberately vent manually operated valves to the atmosphere, but not via relief valves.
- 4-51 34 The draft states that lower stripping levels are prompted primary by the VC standard. Actually, other marketing reasons require producers to strip below the levels set by the regulation. For verification, see the stripping levels given in Table 4-11 on page 4-53.
- 4-52 23 Other factors which affect the rate of stripping are the molecular weight (degree of polymerization) and porosity of the resins. As these factors decrease, the rate of stripping also decreases. Customers often have requirements for resin classes that strip with much more difficulty than do other classes.

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| 4-53 &
4-54 | 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. |
| 4-59 | 10-13 | The draft misstates the results of the B. F. Goodrich study. A corrected statement should indicate that fugitive emissions from small reactors were "0.034 kg/100 kg (0.034 lb/100lb) of PVC produced or approximately 20 percent of the EPA estimated controlled rate. Fugitive emissions from new large reactor suspension processes were determined to be 0.0085 kg/100 kg (0.0085 lb/100 lb) of PVC or only 5 percent of the EPA estimated controlled rate." |
| 4-62 | 17 | As stated above in reference to pages 4-11 and 4-12, we do not believe that any reactor relief valves are connected to a flare system. We are aware of one monomer plant that routes compressor discharges to a flare system. |
| 4-65 | 10 | As stated before, the standard exempts emergency manual venting from the emission limit of 10 ppm. |
| 4-65 | 34 | The statement is incorrect. One plant has modified the <u>unloading</u> lines from railcars, not the <u>transfer</u> lines. Thus, after purging the lines to recovery the volume is less than the allowed volume under the standard. |
| 4-67 | 7 | There was no general two-year waiver period for compliance, as the sentence implies.

The review of leak programs referred to here was held only for Regions III and IV. Region VI held a different study. Instead of "the EPA Regions", the statement should read "a few of the EPA Regions." |
| 4-78 | 11 | VCM calibration gases are certified by the manufacturer. As a check, the plant can run a comparison test with their dd calibration gas. Analysis by Method 106 is unnecessary. |

- 5-3 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.
- 5-3 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 the statement should be deleted.
- 5-4 8 The report suggests that monthly or semiannual averaging of reactor opening loss would apply mainly 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.
- 5-6 20 New source performance standards (NSPS) should not be applied to existing sources unless they become new sources through plant modification or expansion.
- 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 RVC 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 RVC levels substantially less than that currently allowed by the existing standard. It would be interesting to know the permit RVC level for the referenced application
- This discussion implies that indirect drying reduces emissions. This is incorrect and misleading. Not all RVC is emitted from the dryer exhaust as stated. Some also emanates from the blend tanks and silos, while some remains in the resins. The figures also improperly assume that the resins will be at the 400 ppm RVC level, as opposed to actual, current levels.

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 endorsed regulation of stripping levels as opposed to post-stripping sources.

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| 5-7 | 5 | The prevention of significant deterioration (PSD) application should be identified. |
| 5-7 | 6 | The stated figure for the production of an average plant should be 90 gigagrams, not 90 megagrams. |
| 5-7 | 8 | Indirect drying would have little effect on emissions here. It is obsolete technology and does not apply to PSD situations. |
| 5-7 | 13 | The draft should be factual and not judgmental. The suggested regulation of blend tanks and centrifuges is subjective and unsupported by referenced data. |
| 5-8 | Section 5.11 | The premise of the leak detection section of 5.11 the VC standard is site specificity. EPA should recognize that each plant is unique, and that leak detection programs need to be tailored to the individual site. |
| 5-9 | 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

<u>Page</u>	<u>Line</u>	<u>Comment</u>
6-6	7	OSHA regulations require rail and tank car cleaning and repair facilities to place strict limits on the maximum amount of VC in containers sent for service. Cars are purged before use.
6-7	Section 6.3.4	The draft report states that PVC disposal sites (landfills) are unregulated, represent a potential VCM emission source, and are an area of concern for regional EPA personnel. Such statements increase the likelihood of unnecessary regulation of PVC related wastes and landfills accepting such wastes under RCRA or the Clean Air Act. This concern is increased by TRW's plans to include landfills as an area of focus in their Phase II study. 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.

Chapter 7

In general, the impact of other regulations is understated.

The Interagency Regulatory Liaison Group's (IRLG) "Regulatory Report," Vol. II, Issue II (December, 1980) provides a review of the status of pending regulatory actions. This, in turn, can be updated through more recently published regulatory agendas. EPA's agenda appears at 46 Fed. Reg. 23692 (April 27, 1981).

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

- 7-7 25 Implementation of the standards in the
 California SCQMD 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.

- 7-9 4 The draft report errors when it states that
 California Rule 1005.1 on VCM requires
 reactors and other equipment upstream of
 stripping to be equipped with automatic
 pressure reduction systems (APRS). Such a
 requirement, by the terms of Rule 1005.1, is
 contingent upon there being two violations
 per month of the ambient air concentration
 requirement in two consecutive months caused
 by emergency relief valve discharges.

- 7-10 Section The discussion ignores the status of PVC
 sludge 7.3 under RCRA and its relationship to
 TRW's suggested review of solid waste
 disposal under the Clean Air Act.

- 7-12 16 Ambient water quality criteria for vinyl
 chloride where published by EPA in October
 1980. See 45 Fed. Reg. 56628 (Oct. 1, 1979).

- 7-14 25 The statement concerning FDA "permits" is
 incorrect. There is no such system. No
 reference is cited for the statement. FDA
 does have regulations governing good
 laboratory practice (GLP), good manufacturing
 practice (GMP) and best manufacturing
 practice (BMP).

III CONCLUSION

Should the Agency conclude that further activity is needed, we recommend that the following steps be taken.

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

2. Any substantive revision of the VC standard must be preceded by the development of health effects data that would demonstrate 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 Section 112 of the Clean Air Act, the provisions of Executive Order 12291, and the guidance given by the Supreme Court in the Benzene case.

Enormous strides have been made since 1975 in the epidemiology and pharmacokinetics of vinyl chloride. We do not believe that a simple calculation of risk by CAG can be adequate unless all available data are evaluated. We will assist CAG in the gathering and evaluation steps if we will be permitted to do so. At a minimum, we request permission to comment on the draft CAG report, now due in July, before it is issued in final form.

3. The Agency should address the admittedly incomplete data base with emissions and compliance records from the Regional offices. Evaluate the need for these reports if they are so difficult to acquire.

4. Assemble all of the presently available data within the Agency relative to compliance technology and emissions. Specifically, we understand that the regions have conducted some monitoring studies near plants, have sponsored a study by Radian Corporation on gasholders, and that the Agency has a report by John Zinc Company on flare efficiency. Extensive data on landfills were submitted to EPA as part of the RCRA proceedings in 1979, and health data were submitted to OSHA in 1980. There may well be sources of information. These available resources should be utilized in any review of the standard.

5. More effort should be applied toward estimating the cost effectiveness of the current standard, especially in the reporting and work practices areas. Alternative procedures which may produce equal results at a lesser burden to EPA and the industry should be considered. This effort will be necessary, if review is continued, to meet the requirements of Executive Order 12291.

6. 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.

We appreciate this opportunity to comment on the TRW draft and the vinyl chloride review study.

Respectfully submitted,

Peter L. de la Cruz
Assistant General Counsel
Society of the Plastics
Industry, Inc.