DRAFT, 7/20/84

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6560-26

ENVIRONMENTAL PROTECTION AGENCY

[40 CFR Part 61]

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Vinyl Chloride

[AD-FRL-]

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed Rule and Notice of Public Hearing.

SUMMARY: The current emission standard for vinyl chloride (VC) was promulgated under Section 112 of the Clean Air Act in 1976. A review of the technological basis and administrative aspects of the standard has been completed, and the conclusions of the review are presented in this notice. The conclusions are the basis for this action which (1) proposes administrative and clarifying revisions to the standard and (2) announces decisions pertaining to other aspects of the current standard. This notice also withdraws proposed revisions to the current standard which were published in the FEDERAL REGISTER on June 2, 1977 (42 FR 28154).

If requested, a public hearing will be held to provide interested persons an opportunity for oral presentations of data, views, or arguments concerning the proposed revisions to the current standard.

DATES: Comments. Comments must be received on or before _____ (75 days after publication in the FEDERAL REGISTER).

Public Hearing. If anyone contacts the EPA requesting to speak at a public hearing by _____ (3 weeks after proposal), a public hearing will

be held on _____ (about 45 days after proposal) beginning at 9:00 a.m. Persons interested in attending the hearing should call Ms. Shelby Journigan at (919) 541-5578 to verify that a hearing will occur.

Request to Speak at Hearing. Persons wishing to present oral testimony must contact EPA by _____ (3 weeks after proposal).

ADDRESSES: Comments. Comments should be submitted (in duplicate if possible) to: Central Docket Section (A-130), Attention Docket Number A-81-21, U. S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460.

Public Hearing. If anyone contacts the EPA requesting to speak at a public hearing by _____ (3 weeks after proposal), the public hearing will be held at EPA Auditorium, corner of Highway 54 and Alexander Drive. Persons interested in attending the hearing should call Ms. Shelby Journigan at (919) 541-5578 to verify that a hearing will occur. Persons wishing to present oral testimony should notify Ms. Shelby Journigan, Standards Development Branch (MD-13), U. S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711, telephone number (919) 541-5578.

Background Information Document. The background technical document for the review study may be obtained from the U. S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "Vinyl Chloride - A Review of National Emission Standard," EPA-450/3-82-003, for the review study.

Docket. Docket No. A-81-21, containing supporting information used in developing the proposed standard, is available for public inspection and copying between 8:00 a.m. and 4:00 p.m., Monday through Friday, at EPA's

Central Docket Section, West Tower Lobby, Gallery 1, Waterside Mall, 401 M Street, S.W., Washington, D.C. 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. Robert E. Rosensteel, (919) 541-5671, concerning technical aspects of the industry and control technologies, and Mr. Gilbert H. Wood, (919) 541-5578, concerning regulatory decisions. The address for both parties is Emission Standards and Engineering Division (MD-13), U. S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. As indicated above, please call the U. S. EPA Library for the background information document.

SUPPLEMENTARY INFORMATION:

SUMMARY OF REVISIONS TO CURRENT STANDARD

Revisions. Several administrative changes are being proposed as a result of a review of the national emission standard for VC. No major revisions are being proposed to the standard. As with the current standard for VC, the revisions are being established under Section 112 of the Clean Air Act. The significant administrative revisions include: (1) reformatting the emission limit for relief valve discharges, (2) providing a compliance test procedure and a specific emission limit for operators who perform stripping operations in reactors, and (3) specifying requirements for leak detection and repair programs for certain equipment in VC service. Additional minor administrative changes to the standard are being proposed and are explained later in this preamble.

Summary of Health, Environmental, Energy, and Economic Impacts. Since no major revisions to the standard are being proposed, the impacts resulting

from the current standard remain generally unchanged. In 1975, it was estimated that emissions of VC would be reduced from 96,000 Mg/yr to 4,910 Mg/yr under the current standard, representing an emission reduction of 91,000 Mg/yr of VC (or 95 percent of total VC emissions).

The estimated risks attributed to exposure to VC from plants in operation prior to the current standard were 5.55 cases per year for liver angiosarcoma and 11.7 cases per year for all cancers. The risks attributed to exposure to VC from sources under the current standard have been estimated to be 0.28 cases per year for liver angiosarcoma and 0.61 cases per year for all cancers.

In 1975, the estimated capital cost for existing plants to meet the VC standard was $198 million, of which $15 million was for ethylene dichloride (EDC) and VC monomer plants and $183 million was for polyvinyl chloride (PVC) plants. The EPA estimated that these plants would spend $70 million per year to maintain the required emission levels.

BACKGROUND

The VC standard was proposed on December 24, 1975 (40 FR 59532), and promulgated on October 21, 1976 (41 FR 46559). It is applicable to plants producing EDC by the reaction of oxygen and hydrogen chloride with ethylene, plants producing VC by any process, and plants producing one or more polymers containing any fraction of VC. These plants are subject to different requirements at numerous VC emission points in the manufacturing process. These requirements include numerical emission limits, equipment specifications, and work practices.

The standard was designed to minimize the health risks associated with VC by requiring reasonable control measures. As stated in the preamble to the proposed standard (40 FR 59532, December 24, 1975), there is no known threshold level of effects for VC. Therefore, the only approach that would eliminate health risks associated with VC would ban its production and use. This approach was not selected. Rather, an approach was selected to minimize the health risks associated with VC. This approach included use of reasonable control measures to reduce emissions of VC.

On November 19, 1976, the Environmental Defense Fund (EDF) petitioned the United States Court of Appeals for the District of Columbia Circuit to review the standard. On March 24, 1977, the EDF and the EPA moved to dismiss the proceedings on the basis of a settlement agreement requiring the EPA to propose amendments which would require increased efficiency of existing control equipment, require more stringent control of new sources, and prohibit increases in emissions within the vicinity of an existing source due to new construction. The preamble to the proposed amendments was to state that the EPA's policy for regulating carcinogens under Section 112 of the Clean Air Act would include a general goal of eliminating emissions of carcinogens and that the EPA would initiate a review of the VC standard 3 years after the promulgation of the amendments.

On June 2, 1977, the amendments were proposed (42 FR 28154). Many comments pertaining to policy, technological feasibility, and procedural aspects of the proposed amendments were received. Review of these comments indicated that additional technical data and cost information were required before the proposed amendments, or revisions of the proposed amendments, could be promulgated.

Meanwhile, the EDF filed a petition with the EPA requesting the establishment of a comprehensive program for regulating airborne carcinogens under Section 112 of the Clean Air Act. The aspects of the EDF's petition concerning the development of standards under Section 112 were similar to those proposed in the June 2, 1977, amendments to the VC standard. Based on the similarity of the proposed amendments and the EDF's requested comprehensive program for regulating airborne carcinogens, the EPA believed that it should not take final action on the proposed VC amendments until after it had acted on the EDF's petition.

On October 10, 1979 (44 FR 58642), the EPA proposed "Policy and Procedures for Identifying, Assessing, and Regulating Airborne Substances Posing a Risk of Cancer." This proposal addressed several issues which were central to the proposed VC amendments. It also articulated the EPA's conclusion that Section 112 does not express an intent to eliminate totally all risks from emissions of airborne carcinogens. The EPA's selection of the level of control for a hazardous air pollutant emission standard would not be based on a policy that requires zero emissions of carcinogens. This policy is consistent with the basis for other recent proposals under Section 112. For example, proposed standards for benzene from coke ovens and leaks from equipment components in benzene service are not based on a zero emissions policy but rather on a reasonable level of control, which considers emissions and health risks.

The EPA believes it is not appropriate to leave the proposed amendments to the VC standard in effect or to promulgate amendments based on the proposed amendments. Therefore, the June 2, 1977, proposal is withdrawn.

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As described in the following sections of this notice, the EPA began a review study to obtain additional technical data and cost information and to determine whether other amendments to the standard are needed. New amendments developed as a result of the review study are proposed in this notice.

REVIEW OF VC STANDARD

Early in 1980 the EPA began a review of the VC standard. The primary purpose of the review was to investigate the adequacy and appropriateness of the standard in light of policy decisions, health studies, control technology developments, and enforcement and compliance experience which have occurred since the standard was first promulgated. The review consisted of a screening study of: (1) existing and new control technologies, (2) sources not regulated by the standard, and (3) enforcement and compliance experience since promulgation of the standard. Information and data evaluated during this study were obtained through literature searches, plant visits, and interviews with industrial representatives and EPA regional personnel involved in enforcement and surveillance of the VC-emitting industries. This information and data are presented in a document that may be obtained as described in the ADDRESSES section of this preamble. Decisions based on this review are summarized in the next two sections of this preamble.

As another aspect of the review of the VC standard, the EPA's Carcinogen Assessment Group reviewed new health studies that have become available since the standard was promulgated. This review included a study of the estimated carcinogenic strength of VC (the VC unit risk number) and focused on whether this number should be changed to reflect new information. Since the current standard was promulgated, new occupational studies have confirmed

qualitatively that liver and brain cancer incidence are associated with VC exposure. However, none of these new studies has sufficient exposure information to warrant a refinement of the quantitative cancer risk estimate.

FINDINGS AND CONCLUSIONS OF THE REVIEW STUDY

The findings and conclusions of the VC review study are presented in the following subsections. The first subsection discusses the need and basis for the current standard. The second subsection addresses the level of control required by the current standard. The third subsection identifies source categories not covered by the current standard and evaluates the appropriateness of regulating these sources.

(1) Need and Basis for Current Standard

The current VC standard was established based on judgments concerning the costs and benefits of the standard to society. The standard is not designed to eliminate VC exposure risk entirely. Rather, it strikes a balance between public health protection and the cost of that protection. Data (evaluated before the current standard was established) strongly indicate that VC causes or contributes to the development of angiosarcoma, other cancers, and various noncarcinogenic disorders in people with occupational exposure and in animals with experimental exposure to VC. Although no dose-response data are available at the concentrations of VC found in the ambient air, the EPA concluded when the standard was established that any atmospheric concentration of VC poses some public health risk. To eliminate the risk of VC exposure entirely, a complete prohibition of all VC emissions would be necessary. This would require the closure of the entire industry

and result in serious, adverse economic impacts. Furthermore, the EPA concluded at the time the current standard was established that a complete prohibition of all VC emissions would not be desirable or necessary. The EPA concluded this in view of (1) the beneficial uses of VC products for which desirable substitutes are not readily available; (2) the potential adverse health and environmental impacts associated with VC substitutes that have not been thoroughly studied; (3) the number of employees, particularly in fabrication industries, who would become at least temporarily unemployed; and (4) the availability of control technology that is capable of substantially reducing emissions of VC into the atmosphere.

Although all EDC, VC and PVC plants have now incorporated VC emission controls, the maintenance of a Federal standard for VC is still considered necessary. The VC standard contains requirements for the proper operation and maintenance of control devices and the proper implementation of work practices. These requirements reflect an appropriate balance between the need to minimize health risks and the avoidance of unreasonable economic and community impacts which would result from standards designed to reduce risks to zero. Relative to the initial control costs, the additional cost of maintaining and implementing the Federal VC standard is small. Nevertheless, if the Federal standard is discontinued, these small costs may be sufficient to provide the industry with an economic incentive for discontinuing the use of proper control measures. Thus, the continued maintenance of Federal standards for the control of VC is necessary to ensure a continuation of the current level of control. Additionally, the standard is important for the control of VC emissions from plants built in

the future. The consequence of not maintaining a Federal standard would be to increase the carcinogenic risk to large segments of the population. (In 1975 when the standard was originally proposed, approximately 4.6 million people lived within a 5-mile radius of EDC, VC and PVC plants.) Accordingly, the EPA has concluded that the maintenance of the Federal standard for VC, or a reasonable revision of the standard, is appropriate.

(2) Review of Technology-Based Level of Control

This subsection describes the status of the technology-based level of control for sources covered by the current standard. The present status of emissions from sources covered by the current VC standard is presented in Table 1.

10 ppmv Standard. Emission sources covered by this standard include EDC purification and VC monomer formation and purification equipment, monomer recovery systems and other equipment at PVC plants, and vents from fugitive emission capture systems. The standard is based primarily on the control of these emissions by incineration or other primary control devices and specifies an emission limit of 10 parts per million by volume (ppmv) of VC averaged over a 3-hour period. The 10 ppmv standard applies to control device bypass streams.

One of the amendments proposed in 19/7 would have required reduction of the emission limit from 10 to 5 ppmv. The goal of the proposed 5 ppmv limit was to ensure that the standard continued to approach a "zero emission goal" by requiring owners and operators both to maximize the effectiveness of existing control systems and to design improved new control systems at the time of construction. The 5 ppmv limit was not based on data for control

NOTE to FEDERAL REGISTER Personnel: Please print this table on one-half page on the bottom of the page with the two sentences following "(1) Review of Technology-Based Requirements".

TABLE 1. STATUS OF CURRENT EMISSION LEVELS FROM SOURCES COVERED BY THE VINYL CHLORIDE NESHAP

Emission Source	Standard	Emissions (Mg/Yr) Uncontrolled[a] (Prior to 1975)	Controlled[b] (Current Levels)
Emissions from a Model 316,000 Mg/yr EDC/VC facility			
Primary Control	10 ppmv	916	3.2
Oxychlorination Vent	0.2 g/kg EDC product	114	50
Fugitive	Work practice and equipment standards	379	38
Relief Valve	Nonpreventable discharge only	Not Available[c]	2.1
Emissions from a Model 68,000 Mg/yr PVC facility			
Primary Control	10 ppmv	326	0.7
Reactor Opening	0.002 kg/100 kg PVC product	313	1.4
Combined Sources After Resin Stripping	400 ppm-suspension bulk, latex [2,000 ppmv-dispersion]	850[d]	27 [136]
Fugitive	Work practice and equipment standards	1,040	109
Relief Valve	Nonpreventable discharge only	136	2.4

[a]Based on the EPA emissions estimates developed from data submitted by industrial sources prior to promulgation of the 1975 VC standard.

[b]Represents estimated emissions from EDC/VC and PVC plants meeting current standard.

[c]Data were not collected on relief valve discharges from EDC/VC plants prior to 1975.

[d]Based on the EPA emissions estimates for a typical suspension plant. Emission estimates for bulk, latex, and dispersion plants are not presented here.

technology different from that analyzed at the time of the promulgation of the 10 ppmv limit.

Comments received on the proposed 1977 amendments stated that in order to meet a limit of 5 ppmv, a control device would have to be capable of control at a level even lower than 5 ppmv to offset emission fluctuations. Commenters also stated that a change from 10 to 5 ppmv would result in little reduction in mass emissions of VC. Finally, commenters questioned the rationale of the "zero emission goal" policy.

Because the proposed 5 ppmv emission limit was not based on data from a control technology different from that analyzed for the current standard and because 10 ppmv represents the lowest level of control which has been consistently achieved, the EPA withdraws the proposed 5 ppmv limit and affirms the original 10 ppmv limit. If such a technology had been identified, it could have been the basis of a revised standard. However, during the review study no more advanced technology was identified, even though additional data on incinerators, carbon adsorbers, and solvent absorption control systems on existing plants were obtained. Although these data indicate that incinerators are capable of reducing emissions below 10 ppmv, 10 ppmv represents the lowest level of control which has been consistently achieved. Based on this information, the EPA has concluded that there is no improved or new control technology that has been demonstrated to significantly and consistently reduce emissions to a level below that required by the current standard. Therefore, no further technological investigation of the 10 ppmv standard is planned.

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Oxychlorination Vent Standard - 0.2 g/kg EDC. The current oxychlorination vent standard of 0.2 g of VC per kg of EDC does not require an add-on control device. Instead, the limit can be achieved at most plants by controlling operating conditions and at the remaining plants through process modifications. At the time the original standard was written, incineration of oxychlorination vent emissions was investigated. Because of expected high energy costs associated with supplemental fuel requirements for combustion, incineration was determined not to be a reasonable method of control for this source.

The amendments proposed in 1977 specified a level of 5 ppm for the oxychlorination vent. The proposed requirement was based on installation of an oxygen feed system with an incinerator or equipment control device. The use of oxygen feed in the EDC oxychlorination process decreases the volume of inert substances in the vent stream and, consequently, the cost for supplemental fuel required for incineration. Comments received on this proposed amendment focused primarily on the high expense and large energy requirements associated with the production of oxygen.

The review study identified no control technology for oxychlorination vents at EDC/VC plants that had not been considered during the development of the original standard. Additionally, the EPA reevaluated the cost of retrofit incinerator controls and reached the same conclusion drawn in the development of the original standard. As before, the high cost associated with incinerating oxychlorination vents at existing EDC/VC plants makes this level of control unreasonable. Thus, the current standard of 0.2 g/kg EDC is considered still to be the most reasonable level of control for existing

oxychlorination vents. In addition, the review study concluded that significant new construction or modification of EDC/VC plants is not expected. At this time, only one new EDC/VC facility is reportedly planned. (BF Goodrich has plans to construct an EDC/VC facility in Convent, Louisiana.) Oxychlorination vents at new EDC/VC plants will be regulated by the proposed standards of performance for air oxidation processes (40 CFR Part 60 Subpart III) or by the BACT or LAER requirements of new source review regulations applicable in specific locations to a level comparable to that achievable through the use of incineration. Because the technologically achievable level of control is assured through the current requirements, the EPA concluded that investigation of additional control (i.e., incineration) was not required for oxychlorination vents.

Reactor Opening - 0.02 g/kg PVC Product. The current VC standard restricts emissions during polymerization reactor openings. The standard was based on reactor purging and on a reduction in the frequency of reactor openings. An increased level of control was not proposed in the 1977 amendments. (The level of control provided by the current standard, 0.02 g/kg of PVC product, reduces VC emissions to about 1.36 Mg per year for a model PVC plant.) During the review of the standard, no technology was identified that would provide additional VC reductions beyond the level of the current standard. Therefore, the EPA is not investigating further the control of reactor openings.

Combined Sources After Resin Stripping. The sources of VC emissions covered under the current standard include blend tanks, dryers, centrifuges, storage silos, bagging operations, and any sources following the stripper.

Control of these emissions is based on either stripping the PVC resin to a specified (based on resin type) residual VC level (i.e., 400 ppm for suspension, bulk, solution, and latex resins; and 2,000 ppm for dispersion resins) or controlling the emissions from all sources following the stripper with a control device. The 1977 proposed amendments would have required "new resins" to be stripped to lower levels (i.e., 100 ppm for suspension, bulk, solution, and latex resins; and 500 ppm for dispersion resins). When the amendments were proposed, the EPA believed that some resins could meet the proposed limits; whereas, for other resins the manufacturer would have been required to develop improved stripping technology or not to produce the resin.

Industry comments stated that most dispersion, copolymer, and bulk resins would suffer degradation if more stringent emission limits were imposed. Additionally, the commenters noted the inherent difficulties in defining a "new resin." Information submitted by commenters indicated that minor adjustments to resin compositions are made routinely, and completely new resins are rarely, if ever, made. As a result of these comments, the EPA concluded that it is impossible in many cases to distinguish between new and existing resins and still have any resins covered by the proposed amendments. Further, the proposed amendments did not address what levels of control could be achieved by improved stripping technology. For these reasons, the EPA chose to evaluate whether higher levels of control are achievable for all resins, or only for some special classes of resins.

The review study found that resin stripping technology has improved since the current standard was promulgated, and that some processors can

achieve lower resin residual VC levels than those required in the original standard. In certain cases, some resins can meet the more stringent levels specified in the previously proposed amendments. However, other processors manufacturing resins of differing grades and characteristics can only marginally comply with the original standard. Because of the wide variation in resin grades and characteristics, it cannot be concluded that, even though a particular resin made by one company can meet a particular level, any other resin or similar resins produced by another company could also meet that level. Furthermore, in some cases these processors meeting the more stringent limits proposed previously are stripping these resins to this low level to offset emissions from those resins which are more difficult to strip. Without this ability to average the emissions and reductions among resins, these processors might not achieve the current standard. Exempting resin grades known to be difficult to strip is not feasible because these resins cannot readily be defined. For the foregoing reasons, the EPA has concluded that there is no demonstrated level of control which could significantly and consistently reduce residual VC levels in resins to levels below that required by the current standard. Therefore, the EPA is not investigating further the control of the combined sources after stripping.

Equipment Leaks. Because little was known about leak detection and elimination programs for control of equipment leaks from components in VC service, specific requirements for these programs were not included in the current standard. Instead, each plant was required to institute and implement a formalized leak detection and elimination program incorporating both a fixed-point monitor and a portable monitor. Plant-specific programs were

subject to approval by the Administrator. Consequently, due to site-specific differences among plants, as well as variations in leak definitions and monitoring practices, differences in control of equipment leaks among the plants have resulted. Since the standard was promulgated, the EPA has obtained more information pertaining to the control of equipment leaks from components in VC service. With the information obtained from the development of other standards, an effective leak detection and repair program based on use of a portable monitor can now be specified for equipment covered by this program. The specific leak detection and repair requirements are discussed in the ADMINISTRATIVE REVISIONS section of this preamble.

Relief Valve Discharge Standard. Sources of VC emissions covered by this standard include discharges from relief valves on pressure vessels, transfer lines, and other equipment in EDC/VC and PVC plants. The standard is based on emission control by a combination of equipment and process modifications, and operational procedures, found in plants during development of the standard. An exact combination of modifications and operational procedures was not specified. Instead, a performance standard was established because it was believed that different combinations could be equally effective in controlling relief valve discharges. The current format of the standard prohibits all relief valve discharges except emergency discharges. Emergency discharges are described as those which could not have been avoided by taking measures to prevent the discharge (i.e., those that are "nonpreventable"). Since the standard was promulgated, all plants have experienced some releases. Many of these releases are considered preventable by the EPA. Based on visits to plants with good compliance

histories, the EPA concluded that a level of performance reflecting compliance with the current format of the standard through the combined effects of equipment, process modifications and operational procedures remains reasonable. During the review, no technological level of control was found that would provide for a more stringent standard. Therefore, the standard is still considered to reflect the appropriate level of control for these sources. However, as discussed in the ADMINISTRATIVE REVISIONS section of the preamble, the EPA is proposing to restate the standard in a different format.

Administrative Aspects of the Standard. Even though the EPA decided not to revise the level of control associated with the current VC standard, the EPA identified revisions to several administrative aspects of the standard. These revisions as well as those identified above, are discussed in the ADMINISTRATIVE REVISIONS section of the preamble.

(3) Review of Sources Not Previously Covered

This subsection discusses the status of VC sources not covered by the current standard that were identified in the review study. For these sources, the EPA assessed whether a Federal standard was warranted. The EPA's assessment of these sources was based primarily on a quantitative analysis of VC emissions from these sources combined with a qualitative analysis of risks associated with exposure to VC from these sources. The EPA considers these analyses to be adequate in place of a thorough quantitative risk assessment for purposes of determining whether a Federal standard is warranted for these sources. Because the quantity of VC emissions, and consequently, the risks associated with exposure to VC from these sources,

is small in comparison to sources covered by the VC standard, the EPA concluded that none of the additional sources identified in the review study warrant a Federal standard.

Miscellaneous Sources of VC Emissions. Miscellaneous sources are plants other than PVC and EDC/VC plants that use VC as a raw material or produce VC as an intermediate or by-product. The EPA has identified four such plants. Two of these plants produce 1,1,1-trichloroethane, one produces perchloroethylene and trichloroethylene and the fourth plant produces pesticides. (An additional 1,1,1-trichloroethane unit was constructed at a fourth location but has reportedly never operated. There are no plans to operate in the future.) Review of VC emission sources at the identified plants showed them to be well controlled. Emissions of VC from these plants are primarily from fugitive sources and range from less than 1 Mg/yr to 14 Mg/yr per plant. In general, the VC NESHAP requirements for process vents and equipment in VC service are being met at the miscellaneous sources due to company policy considerations and State and local regulatory requirements. In addition, many of the equipment in VC service would be covered by standards of performance for new sources and standards for sources in nonattainment areas. Based on the investigation of these sources, the EPA concluded that they do not contribute significantly to VC exposure. For this reason, additional requirements for miscellaneous sources of VC are not being proposed at this time.

PVC Fabrication Plants. There are about 8,000 fabrication plants which take the resin produced by PVC plants and fashion it into intermediate or final products. Emissions from these plants are estimated to be about

0.0035 Mg/yr per plant. In comparison to VC production plants (which typically emit about 92 Mg/yr), PVC fabrication plants are small emitters of VC. If standards were developed for this category they would not result in reduced emissions because the best control for these plants is to reduce the VC levels in the resins being processed by the fabricators. Resin stripping beyond the level that process economics would dictate is already being done as a result of the EPA's current standard and OSHA's VC standard. Based on the EPA's assessment of these sources, the EPA concluded that they do not contribute significantly to VC exposure. Therefore, the EPA believes that the evaluation of controls for PVC fabrication plants is unnecessary and that the current level of control resulting from the EPA's standard and OSHA's VC standard is still reasonable.

Landfills. Off-specification resins containing VC can be taken to landfills where the gaseous VC can be released. However, the current EPA standard already requires stripping of resins to reduce the VC emissions from sources downstream from the stripper. Stripping requirements are also applied to the off-specification resins before removal to landfills. The EPA believes that the level of control resulting from the EPA's current VC standard is reasonable; thus, VC emission requirements for landfills are not being proposed today. However, the regulation of potential VC emissions from chemical landfills, is still a subject for investigation under the Resource Conservation and Recovery Act.

ADMINISTRATIVE REVISIONS

As discussed in the FINDINGS AND CONCLUSIONS OF THE REVIEW STUDY section of this preamble, the EPA identified several administrative revisions

that are appropriate as a result of the review study. The rationale for the proposed administrative revisions is presented in this section of the preamble. These revisions include: (1) reformatting the emission limit for relief valve discharges, (2) providing a compliance test procedure and a specific emission limit for operators who strip in the reactors, (3) specifying requirements for leak detection and repair programs for equipment components in VC service, and (4) miscellaneous revisions.

RELIEF VALVE DISCHARGES

Background. The current format of the standard for relief valve discharges allows only "emergency" discharges (i.e., discharges that could not be avoided by taking preventive measures). The standard applies to all pressure relief devices on pressure vessels, transfer lines, and other equipment in EDC/VC and PVC plants. The control techniques considered as the basis of the standard involve a combination of equipment modifications, process modifications, and operational procedures. An exact combination of modifications and operational procedures was not specified in the current standard; rather, a performance standard was established because different combinations of the modifications and procedures were expected to be equally effective in controlling relief valve discharges.

Based on 6 years of enforcement and compliance experience, the EPA has concluded that the relief valve discharge standard has resulted in: (1) significant reductions in the frequency and quantity of VC discharges from relief valves, (2) significant use of agency resources to evaluate individual discharges for preventability, and (3) uncertainty on the part of producers regarding whether they comply with the standard. Additionally,

the EPA learned some producers of VC and PVC believe that this part of the standard applies only to discharges through safety relief valves and that discharges through other pressure relief devices, such as rupture disks or manual or automatic vent valves, are not covered. This interpretation is not compatible with the intent of the standard. To provide more efficient enforcement by decreasing the burden of individual preventability assessments on the EPA, and to provide a better understanding to plant operators of the goal of the standard, the EPA is proposing to reformat the standard for relief valve discharges and to define the emission points covered by this standard to include all pressure relief devices. As discussed more completely in the following sections, the EPA is proposing to change the format of the numerical limits in the standard to reflect the number of discharges that occur from those plants complying with the current format of the standard.

The EPA found in the review study that efforts by all EDC/VC and PVC producers to comply with the standard are reflected in their performance (in terms of size and frequency of discharges) since the standard went into effect. In general, a reduction in the reported frequency and size of relief valve discharges by PVC producers has occurred since 1978. A further decrease in relief valve discharges by the PVC industry occurred between 1980 and 1981. Performance by the EDC/VC industry exhibited a less marked trend of decreased discharges over the compliance period. Following an initial drop in relief valve discharges after the standard went into effect, the frequency and quantity of relief valve discharges by EDC/VC plants have decreased slightly or remained relatively constant.

General Basis for Numerical Limits. In selecting the proposed numerical limits, EPA first evaluated in detail the recent performance (1981 to 1983) of five PVC plants and one EDC/VC plant. These plants were chosen based on discussions with EPA Regional Office personnel and industry personnel and were intended to represent plants with good relief valve discharge records. In general, the EPA's evaluation of these plants indicates that each has adopted the combination of equipment, operational procedures and attitude toward prevention of relief valve discharges intended by the original standard, and that their resulting performance is consistent with compliance with the current standard. The EPA's evaluation found that a few discharges may continue to occur from some plants that comply with the standard. This observation is consistent with the expectation held by the EPA when the standard was written.

In order to restate most accurately the standard in terms of numerical limits representing compliance with the current format of the standard, this evaluation separated PVC and EDC/VC plants. For PVC plants, relief valve discharge performance data were further separated by source (reactor vs. nonreactor) and by resin type. The EPA then reviewed the performance of 25 additional PVC plants and 12 additional EDC/VC plants. The EPA reviewed this large set of plants to ensure that the level of performance demonstrated by the evaluated plants could be achieved by all PVC and EDC/VC plants.

The numerical limits presented in the Findings section of this preamble are based on an evaluation of the number of discharges representing the demonstrated performance level associated with compliance with the provisions of the existing standard.

Format for Numerical Limits. The EPA visited the five PVC plants evaluated in detail. As expected, the EPA found differences in the combinations of hardware and operational procedures associated with control of relief valve discharges at each of the plants. Furthermore, no exact relationship was found between the effectiveness of specific hardware items and operational procedures and prevention of discharges. In the EPA's judgment, the various combinations of hardware and operational procedures implemented by each of the plants along with the attitudes adopted toward preventing relief valve discharges represent the types of control measures that the standard intended. In particular, the EPA concluded that the low frequency of discharges by the visited plants was indicative of their degree of effort to prevent relief valve discharges. Consistent with the goal of this proposed revision, the EPA decided that an alternative numerical emission limit based on performance resulting under the current standard could be restated in a format that would be easier to understand by enforcement and industry personnel.

The EPA investigated two basic ways of expressing relief valve discharge performance for PVC plants. One format is based on mass emissions, for example, the pounds of VC discharged per million pounds of PVC produced (lb VC/MM lb PVC). Based on a review of methods used by industry to determine the amount of VC discharged from relief valves, the EPA was unable to identify a sufficiently accurate method for measuring discharge quantities from relief valves. At present, producers are required only to estimate discharge quantities for reporting purposes. Demonstration of compliance with a lb VC/MM lb PVC limit would require producers to

measure the amount of VC discharged during an incident. Because a suitable measurement method was not identified, the EPA decided not to redefine relief valve discharge performance by PVC plants in a lb VC/MM lb PVC format.

Another format is based on the frequency (i.e., number per unit time) of discharge occurrences. No method for measuring the amount of VC discharged from relief valves is needed because only the occurrence of a release is required for this format. The occurrence of a discharge can be determined relatively easily by monitoring process parameters as well as inspecting relief valve performance reports. Thus, of the two basic ways of expressing relief valve performance that were considered, the EPA selected a format based on the frequency of discharges.

Based on this decision, the EPA then considered how the format would be applied to PVC and EDC/VC plants. At PVC plants, the frequency of discharges from polymerization reactors and associated process equipment may be related to the fact that a batch process is used to produce most types of PVC. For batch PVC production processes, the opportunity for discharges is related to the number of times a new polymerization batch is initiated. Expressing relief valve discharge performance for these plants with a discharge-per-batch format accounts for variations among plants in the number of batches produced. The EPA selected 100 polymerization batches as a convenient basis for expressing relief valve discharge performance by PVC plants with batch production processes in a discharge frequency format.

Further, the EPA noted that the ability of batch PVC producers to limit the discharge frequency may be different for reactor and nonreactor

discharges and that reactor discharges may vary by resin type at any plant. Consequently, relief valve discharges by individual PVC plants (except for continuous solution process plants) were classified according to type of discharge (i.e., reactor vs. nonreactor) and the reactor discharges were separated by resin type. Nonreactor discharge sources at PVC plants include blowdown tanks, transfer lines, and storage vessels. Because usage of this equipment is also related to some extent to the frequency of batch polymerization operations, the relief valve discharge performance by nonreactor sources in PVC plants with batch production processes was also examined on the basis of number of discharges/100 batches.

Unlike the batch process used to produce other PVC resin types, the solution PVC process is continuous. Thus, relief valve discharge performance for the solution PVC process cannot be expressed on a frequency per batch basis. Instead, the relief valve discharge performance associated with the solution production process can only be expressed in terms of the total number of discharges (reactor and nonreactor) per year.

Similarly, the EDC/VC production process is not a batch process, but is continuous. Thus, relief valve discharge performance by EDC/VC plants also cannot be expressed on a frequency per batch basis. Moreover, the EPA was unable to detect a direct relationship between discharge frequency and VC production at EDC/VC plants. Thus, the EPA decided to define relief valve discharge performance for EDC/VC plants on the basis of a total number of annual discharges.

Findings. PVC Reactor Discharges. Suspension resins account for the highest percentage of total PVC production. The remaining PVC production is

in the form of bulk, dispersion and solution resins. (A small amount of latex resin is produced by a process closely related to the dispersion process.) Examination of relief valve discharge performance associated with production of suspension and bulk resins indicates that reactor discharge frequency generally is either less than 0.035 discharges/100 batches or is much greater. (Recent reactor discharge frequencies for suspension resin plants with poorer performance levels ranged between 0.059 and 0.101 discharges/100 batches.) Further examination of relief valve discharge performance by suspension resin producers indicates that only one plant experienced more than 4 discharges per year during the period from 1981 to 1983. Performance by this plant also exceeded 0.035 discharges/100 batches.

The reactor discharge frequency associated with dispersion and latex production is typically zero. However, for a typical dispersion or latex resin process with a low production rate (i.e., number of polymerization batches per year), a single emergency reactor discharge in a given year would be equivalent to a discharge frequency of about 0.035 discharges/100 batches.

Nonreactor Discharges. Nonreactor discharge frequencies by PVC plants typically were either less than 0.025 discharges/100 batches or were much greater. (Recent nonreactor discharge frequencies reflecting poorer performance than the 0.025 level ranged between 0.046 and 0.225 discharges/100 batches.) Furthermore, with the exception of two producers, no more than three discharges per year were reported from nonreactor sources in PVC plants during the period from 1981 to 1983.

Each of the five PVC plants that the EPA evaluated in detail was among those achieving 0.035 discharges/100 batches or less in each of the reactor discharge categories and 0.025 discharges/100 batches or less in the nonreactor discharge category. The EPA examined individual discharge incidents for the PVC producers whose recent performance has exceeded 0.035 discharges/100 batches in one or more of the reactor discharge categories or who exceeded 0.025 discharges/100 batches and 3 discharges per year from nonreactor sources. In every case, the EPA identified one or more discharges that were preventable. Elimination of these preventable discharges indicates that these producers should have achieved discharge frequencies comparable to the five PVC plants that the EPA evaluated in detail.

Solution PVC Process. Discharge frequency from both reactor and nonreactor sources by the single plant producing PVC by the solution process was zero during the period 1981 to 1983. Previously, this plant experienced as many as two discharges in a 12-month period. Recent performance suggests that preventable discharges have been eliminated at this plant. With the exception of a potential emergency discharge occurrence, future discharges at this plant are not anticipated.

EDC/VC Discharges. During the review study, the EPA evaluated performance by one EDC/VC plant in detail. This plant experienced about four discharges that could be considered emergencies. Recent (1981 to 1983) relief valve discharge performance data for other EDC/VC producers indicates an industry range of 0 to 7 discharges/yr. Information obtained from plants during the review indicated that, where applicable, similar types of equipment, process modifications and operational procedures used to control

relief valve discharges from PVC plants also are used at EDC/VC plants. The EPA examined discharges by the EDC/VC producers who exceeded four discharges in one or more years since 1981 and found that one or more of the discharges at each plant were preventable. Elimination of the preventable discharges would allow each of these plants to reduce their annual discharge frequency to four or fewer.

Summary of Numerical Limits. Based on the study of current relief valve discharge performance by PVC and EDC/VC plants, the EPA is proposing that the following numerical limits for relief valve discharges be added to the standard. An exceedence of any numerical limit presented below would be considered a violation without regard to whether any individual discharge was preventable.

Category	Numerical Limit
(1) Discharges from PVC plants (suspension, dispersion, latex, bulk processes)	
- Reactors	
- suspension resin process	0.035 discharges/100 batches, not exceeding 4 discharges/yr
- dispersion resin process (including latex resin)	0.035 discharges/100 batches
- bulk resin process	0.035 discharges/100 batches
- Nonreactor sources	0.025 discharges/100 batches, not exceeding 3 discharges/yr
(2) Discharges from PVC plants (solution and other continuous processes)	1 discharge/yr
(3) Discharges from EDC/VC plants	4 discharges/yr

Compliance Provisions. The EPA recognizes that all plants may experience an unavoidable relief valve discharge incident at some time. Examination of relief valve discharge performance by PVC plants with low

discharge frequencies indicated that plants with the lowest polymerization batch frequencies typically experience about one discharge in a 12-month period. The EPA concluded that for most plants a 12-month reporting period (rolling every 6-months) was both suitable and appropriate for determining compliance with the proposed numerical limits. For plants producing only a small amount of a particular resin (i.e., low number of polymerization batches), an apparent violation of the standard may result from a single discharge occurrence during a 12-month compliance period as described below.

For a PVC plant producing a single resin type to meet the numerical limit for reactor discharges (i.e., 0.035 discharges/100 batches), it must experience an average of no more than one discharge per 2,858 polymerization batches over the preceding 12-month period. An average reactor discharge frequency exceeding one discharge per 2,858 batches would be a violation of the standard. However, if the plant made less than 2,858 polymerization batches over the 12-month compliance period, a single discharge occurrence would be an apparent violation of the standard (i.e., the discharge frequency per 100 batches would exceed 0.035). Because insufficient batches were made, the reported discharge frequency per 100 batches would not correctly reflect the performance by that plant in comparison to other plants complying with the standard. In rectifying the undue compliance burden posed on plants with small numbers of batches by the discharge/100 batch format and the selected 12-month compliance period, the EPA is proposing to add additional provisions affecting the number of batches used to calculate the discharge frequency. For PVC plants producing less than

2,858 batches of a particular resin, the minimum number of 2,858 batches will be used when determining compliance with the numerical limits.

PVC plants producing more than one resin type must demonstrate compliance separately for reactor discharges occurring from different resin production processes. Only the relief valve discharges and polymerization batches specific to each resin type are considered for determining compliance. However, for determining compliance with the standard for nonreactor discharges, the total number of polymerization batches (regardless of resin type) are counted.

To determine the number of polymerization batches produced for purposes of assessing compliance, the following guidelines apply. A "polymerization batch" consists of each sequence of charging VC and other materials to the reactor, heating reactor contents, polymerization of reactor contents, and removal (i.e., blowdown) of reactor contents. Any batch that is aborted following charging of VC to the reactor is nonetheless counted as a polymerization batch in assessing compliance. For PVC plants producing bulk resin, a single "polymerization batch" includes both prepolymerization and postpolymerization reactor operations.

Discharge frequency can be recorded in two ways. Discharge frequency can be recorded on the basis of discharge events (involving discharges from one or more relief valves) or on individual relief valve discharges. In most cases, plants currently report discharges from each relief valve separately; thus, determination of numerical limits was based on performance levels representing discharges (and not events). For determining compliance

with the numerical limits, discharge frequency is to be recorded on the basis of individual discharges.

A relief valve discharge is considered to be any venting to prevent or relieve an overpressure condition from equipment in VC service that results in emissions of VC directly or indirectly to the atmosphere. In determining whether or not venting results in emissions to the atmosphere, the controlling factor is the ultimate disposition of the gases. Venting to a manifold or header system that ultimately discharges to the atmosphere constitutes a relief valve discharge. If the manifold or header discharges gases through a control device meeting the 10 ppmv VC emission limit, the venting does not constitute a relief valve discharge.

Reporting Requirements. The current standard for relief valve discharges requires producers to report discharges within 10 days of the incident. The EPA is proposing to eliminate the 10 day reporting requirements and to require reporting of all discharges on a quarterly basis. Although compliance is to be determined on a semiannual basis, quarterly reporting of discharges is appropriate because violations of the standard may occur well before the end of the 6-month period. Quarterly reporting notifies enforcement personnel of potential violations and violations that have already occured prior to the end of the compliance period so that corrective actions can take place sooner following the end of the compliance period. Information to be included in the semiannual report for individual relief valve discharges is to be reduced to include only the date, time, source, cause and estimated amount of each discharge occurrence.

In addition, plants will now be required to maintain relief valve discharge records for 3 years instead of 2 years, because of the potentially significant increase in the time period between a discharge occurrence and reporting of the discharge.

Effective Date of Revision. The current standard as written will remain in effect for relief valve discharges until the proposed revisions are promulgated. The proposed administrative revisions are intended only to clarify the current standard and therefore do not change the standard's original intent. Thus, the current standard will continue to be enforced until the clarifying revisions are promulgated.

STRIPPING-IN-REACTOR COMPLIANCE TEST PROCEDURE

The test method for measuring reactor opening losses was developed for resin stripping operations that take place in vessels separate from the reactor. Some PVC plants, however, do not use separate strippers to remove residual VC from the resin produced. Instead, these plants strip VC from the product resin in the reactor. In these cases, the plants have not been able to meet the reactor opening loss standard using the techniques prescribed in the current regulation (§61.67(g)(5)). Currently, waivers of testing for producers with resin stripping operations in the reactor are granted on a case-by-case basis by the EPA Regions, with the provision that residual VC samples are analyzed on each batch. A calculation is used to establish the reactor opening losses.

For plants with reactor resin stripping operations, the concentration of VC in the reactor vapor space, as measured in accordance with the current standard, exceeds the 0.02 g/kg of PVC requirement. The high concentrations

result from VC monomer diffusing from the resin into the vapor space during the period following completion of the stripping operation (normally occurring under a vacuum that must be broken before the reactor can be emptied) and before the reactor is completely emptied of PVC resin. According to the FEDERAL REGISTER notice of promulgation of the current VC standard (40 FR 46563, October 21, 1976), any VC escaping from the resin after it has been stripped to acceptable levels is not intended to be counted as part of the reactor opening loss. However, the current standard did not include an acceptable method for determining what part of the VC in the vapor space has escaped from the resin after stripping is completed. Based on experience of the EPA Regional offices, a method for determining the reactor opening loss that accounts for stripping in the reactor has been developed and included in the proposed revisions to the current VC standard. Limitations for resin residual and reactor opening loss are added together to give a total allowable VC content from these two sources. The measured resin residual VC and the calculated reactor opening loss would then be added together and if they meet the combined standard, the plant would be considered to be in compliance with both the stripping and the reactor opening loss requirements.

LEAK DETECTION AND REPAIR

Background. The current standard requires implementation of a formalized program for detection of leaks from equipment in VC service and elimination of these leaks. The formalized program includes a multipoint VC detector and a portable volatile organic compound (VOC) analyzer. The fixed-point monitoring system continuously monitors VC concentrations in the

work area around equipment in VC service and sounds an alarm when concentrations exceed a prescribed level. The portable monitor is used independently to screen individual equipment components for leaks. Rather than specifying the number of points to be monitored, the sensitivities of the multipoint detector, the VC concentration that indicates a leak, and the actions to be taken to repair leaks, the current standard requires each plant owner or operator to prepare a program plan containing these specifications and to submit the plan to the EPA for approval. Plant owners or operators are required to submit data on background concentrations of VC in different areas of the plant to use in determining the VC concentration that should be designated as indicating a leak. Plans, therefore, were tailored by each plant and reviewed by the the EPA Regional Offices.

The EPA found in the review study that differences in leak detection and elimination programs exist among PVC and EDC/VC production plants and miscellaneous sources and that site-specific differences include variations in leak definitions and monitoring practices. The leak definition and monitoring practices, along with repair practices, are primary influences on the control effectiveness of leak detection and repair programs. Some plants implemented rigorous programs and others implemented programs lacking specific procedures or requirements. Accordingly, the effectiveness of leak detection and elimination programs varies among the plants.

Since the current standard was promulgated, the EPA has obtained more information pertaining to the control of emissions from equipment leaks. Based on this information and the review of the leak detection and elimination plans being implemented to control emissions of VC, the EPA decided to

specify leak detection and repair requirements for certain equipment components in VC service. Although information obtained from development of other standards indicates that a routine leak detection and repair program with a portable monitor can be an effective emission reduction technique without the requirement of a fixed point monitoring system, the EPA concluded that fixed-point monitoring systems already in place have uses that justify their retention in the current standard.

The proposed revisions are primarily intended to standardize control of VC emissions from equipment leaks. In doing this, the EPA is concerned that existing effective plans not be inappropriately changed. Accordingly, the EPA requests comments from industry representatives concerning the effects of specifying leak detection and repair requirements on effective existing plans.

Leak Detection and Repair Requirements. The EPA established leak detection and repair requirements (40 CFR Part 61 Subpart V) for certain equipment in volatile hazardous air pollutant (VHAP) service on June 6, 1984. These requirements were established in conjunction with the final standard for benzene equipment leaks. The requirements of Subpart V generally apply to pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, and product accumulator vessels. These requirements reflect the level of control that the EPA considers reasonable for equipment covered by developing standards for VHAP. The EPA is therefore proposing to add VC to the list of substances covered by Subpart V.

Subpart V would substantively affect only valves and flanges in VC service within this industry. All other equipment in VC service are already required by the VC standard to comply with equipment and work practice standards consistent with those in Subpart V. For example, pumps and compressors meeting the dual mechanical seal requirements of the current VC standard will be in compliance with the Subpart V requirements. In addition, the sampling connection systems requirements of Subpart V are essentially the same as the current standard. The use of rupture discs for controlling leaks from pressure relief devices, as required by the VC standard, is consistent with the "no detectable emissions" requirement included in Subpart V. Requirements for controlling leaks from pressure relief devices are described in more detail later in this section. Thus, Subpart V will affect primarily valves and flanges in VC service by requiring a specific monitoring schedule, leak definition and repair provisions.

Compliance with the provisions of Subpart V will be used to determine compliance with the portable monitor leak detection and elimination requirements in the current VC standard (40 CFR 61.65(b)(8)(ii)), and therefore, the current standard is being revised to reflect this change. Plants already meeting the requirements of Subpart V would be in compliance with the VC standard on leak detection and elimination. Likewise, plants not currently meeting the requirements of Subpart V would be required to follow the requirements of Subpart V in order to comply with the VC standard.

The Subpart V requirements standards for valves are based on a leak detection and repair program that requires (1) monthly monitoring for valves

in gas/vapor and light liquid service, (2) an initial attempt at repairing these valves within 5 days after detection of a leak, (3) repair of leaking valves within 15 days after detection of the leak unless repair would require a process unit shutdown, and (4) repair of valves during the next process unit shutdown after repair is delayed until a process unit shutdown. Valves found not to leak for 2 successive months can be monitored quarterly until leaks are detected. Monitoring of equipment to detect leaks is conducted in accordance with Method 21 and a leak is defined as a measured organic concentration equal to or greater than 10,000 parts per million by volume (ppvm). Subpart V would include two alternative standards for valves in VC service. These alternatives are (1) a limit of 2 percent of valves which may be leaking at any one time and (2) a skip-period leak detection and repair program for process units achieving less than 2 percent of their valves leaking. These alternative standards establish standards for owners and operators who design and operate low-leak process units. For a complete description of the leak detection and repair requirements, see Subpart V (49 FR 23498, June 6, 1984).

In addition, Subpart V contains standards for other types of equipment (e.g., flanges, and open ended valves or lines). Standards for flanges include monitoring with a portable instrument under prescribed procedures within five days of observing evidence of a potential leak by visual, audible or other means. Open-ended valves or lines are required to be capped, blinded or fitted with a second valve. These provisions are not expected to significantly affect producers with these types of equipment in VC service. The equipment and procedures employed as normal practice by

these producers or as a result of the current VC standard are expected to ensure compliance with Subpart V.

Pressure Relief Devices. The EPA proposed and promulgated the work practices, equipment, design and operational standards in the current standard before explicit legal authority existed in Section 112. In August of 1977, Congress amended Section 112 to allow the use of these requirements. Section 112 of the Clean Air Act requires that an emission standard be established for control of a hazardous air pollutant unless, in the judgment of the EPA, it is not feasible to prescribe or enforce such a standard. An emission standard allows for some flexibility in complying with the standard, since any control technique that achieves the standard may be applied. Section 112(e)(2) defines the following conditions under which it is not feasible to prescribe or enforce an emission standard: (1) if the pollutants cannot be emitted through a conveyance designed and constructed to emit or capture the pollutant; or (2) if the application of measurement methodology is not practicable due to technological or economic limitations. Section 112(e)(1) allows that, if an emission standard is not feasible to prescribe or enforce, then the EPA may instead promulgate a design, equipment, work practice, or operational standard, or combination thereof.

The EPA has reviewed the design, equipment, work practice and operational requirements contained in the current VC standard. The only sources covered by the current standard with one of the requirements for which a performance standard is feasible are pressure relief devices. As discussed below, the EPA is setting a "no detectable emissions" limit for

these sources. For the other sources, the EPA is reinstating those requirements as set forth in the current standard.

The EPA selected the use of rupture disks as the basis for the current standard for pressure relief devices. When the integrity of rupture disks is maintained, equipment leaks through the relief device are eliminated. Rupture disks normally maintain their integrity unless an overpressure occurs. After the occurrence of an overpressure, replacement of the rupture disk once again eliminates equipment leaks of VC through the pressure relief device.

For emission control techniques that eliminate equipment leaks, such as the use of rupture disks, a "no detectable emissions" limit is feasible. An instrument reading of less than 500 parts per million by volume (ppmv) above a background concentration based on Reference Method 21 can be used to indicate whether equipment leaks have been eliminated; that is, that the equipment has "no detectable emissions."

The "no detectable emission" limit would not apply to discharges through the pressure relief device during overpressure relief. (These releases are covered under §§61.64(a) and 61.65(a).) The standard would specify, however, that the relief device be returned to a state of "no detectable emissions" within 5 days after such a discharge. The standard would further require an annual test to verify the "no detectable emissions" status of the pressure relief devices and a test after each over pressure relief. This administrative change implements the basis of this standard consistent with the requirements of Section 112(e).

MISCELLANEOUS REVISIONS

Based on discussions with the EPA regional personnel regarding their experience in administering the current VC standard, the EPA is proposing several additional administrative revisions that would facilitate compliance and enforcement efforts associated with the current standard. These revisions represent minor changes to the standard intended to clarify its original intent. Briefly, these administrative revisions are: (1) clarifying which process equipment are included in "EDC and VC purification", (2) clarifying that the averaging period for demonstrating compliance with the 10 ppm standard is 3 hours, and (3) clarifying that the 10 ppm standard applies to each process vent stream prior to dilution.

In addition to the revisions described above, a review of the recordkeeping and reporting requirements of the current standard was performed to identify ways to ease recordkeeping and reporting burden on plants and to identify any additional recordkeeping and/or reporting needs. The EPA concluded that the current recordkeeping requirements, as specified in 40 CFR 61.71, are still appropriate. Expanded recordkeeping and reporting requirements associated with controlling equipment leaks were identified. In general, additional recordkeeping needs include preparation of an initial log to record equipment component identification, physical tagging of equipment components which leak, and maintaining a record of equipment leaks and repair action. Included in reporting requirements are the number of equipment leaks and the repair status of leaking components. In addition, the EPA is proposing to extend the recordkeeping requirements for all semiannual reporting activities from 2 to 3 years.

The EPA identified two areas where the reporting burden on plants could be reduced. The current reporting requirements for residual VC monomer specifications and reactor opening measurements require that results of all compliance tests be reported in semiannual reports. The EPA is proposing to allow plants to report only test results that show exceedences of the respective standards. If no exceedences occur, plants will be required to indicate that fact in the semiannual report. This type of exception reporting is currently allowed for demonstration of compliance with the 10 ppmv standard for process vents. The second area is the requirement to report relief valve discharges within 10 days of their occurrence. The EPA is proposing to allow plants to report relief valve discharge occurences on a quarterly basis rather than within 10 days of their occurence. Furthermore, the reporting requirements for relief valve discharges have been streamlined by dropping the need to report actions taken and implemented preventive measures for each discharge. Information on the date, time, source, cause and estimated amount of individual relief valve discharges will be included with the semiannual reports along with information on compliance status.

The net impact of the revised recordkeeping and reporting requirements proposed by the EPA is estimated to be a decrease in a paperwork burden of about 2.8 person-years.

REGULATORY FLEXIBILITY ANALYSIS

The Regulatory Flexibility Act of 1980 requires that adverse effects of all Federal regulations upon small businesses be identified. According to the current guidelines of the Small Business Administration (SBA), a small

business that produces or processes VC is one that has 500 employees or less. Currently, none of the existing producers or processors that are affected by the standard are estimated to be small by this definition. Since none of the companies meets the SBA definition of a small business, no regulatory flexibility analysis is required. Even if an analysis were required, the proposed administrative revisions do not increase the cost of compliance with the standard.

PUBLIC HEARING

If requested, a public hearing will be held to discuss the proposed revisions to the VC standard in accordance with sections 112(b)(1)(B) and 307(d)(5) of the Clean Air Act. Persons wishing to make oral presentations on the proposed revisions should contact the EPA at the address given in the ADDRESSES section of this preamble. Oral presentations will be limited to 15 minutes each. Any member of the public may file a written statement before, during, or within 30 days after the hearing. Written statements should be addressed to the Central Docket Section address given in the ADDRESSES section of this preamble.

A verbatim transcript of the hearing and written statements will be available for public inspection and copying during normal working hours at the EPA's Central Docket Section in Washington, D.C. (see ADDRESSES section of this preamble).

DOCKET

The docket is an organized and complete file of all the information submitted to or otherwise considered by the EPA in the development of this proposed rulemaking. The principal purposes of the docket are: (1) to

allow interested parties to identify and locate documents so that they can effectively participate in the rulemaking process, and (2) to serve as the record in case of judicial review (except for interagency review materials [§307(d)(7)(A)]).

MISCELLANEOUS

In accordance with section 117 of the Act, publication of this proposal was preceded by consultation with appropriate advisory committees, independent experts, and Federal departments and agencies. The Administrator will welcome comments on all aspects of the proposed regulation, including health, and economic and technological issues.

Under Executive Order 12291, the EPA must judge whether a regulation is "major" and therefore subject to the requirement of a Regulatory Impact Analysis. This regulation is not major because: (1) the national annualized compliance costs, including capital charges resulting from the standards total less than $100 million; (2) the standards do not cause a major increase in prices or production costs; and (3) the standards do not cause significant adverse effects on domestic competition, employment, investment, productivity, innovation or competition in foreign markets.

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291.

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that this rule, if promulgated, will not have a significant economic impact on a substantial number of small entities because no small entities are affected.

_____ _____

Date Administrator

It is proposed to amend CFR Part 61 as follows:

1. By revising the definitions in existing §61.61(l), (o) and (p) for "in vinyl chloride service", "ethylene dichloride purification" and "vinyl chloride purification" and by adding the definition for the term "relief valve" in new paragraph §61.61 (v).

§61.61 Definitions

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(l) "In vinyl chloride service" means that a piece of equipment either contains or contacts a liquid that is at least 10 percent vinyl chloride by weight or a gas that is at least 10 percent by volume vinyl chloride as determined according to the provisions of §61.67(h). The provisions of §61.67(h) also specify how to determine that a piece of equipment is not in vinyl chloride service. This definition must be used in place of the definition of "in VHAP service" in Subpart V of this part.

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(o) "Ethylene dichloride purification" means each part of the process of ethylene dichloride production that follows ethylene dichloride formation and precedes reaction to form vinyl chloride. In processes where ethylene dichloride is used for purposes other than vinyl chloride production, "ethylene dichloride purification" includes each part of the process preceding ethylene dichloride product storage prior to sale or transfer offsite. These parts of the process include, but are not limited to, crude ethylene dichloride storage, light ends separation condensation and storage, heavy ends separation condensation and storage, inprocess ethylene dichloride storage, and dryers.

(p) "Vinyl chloride purification" means each part of the process of vinyl chloride production that includes vinyl chloride formation and precedes final product storage prior to sale or transfer offsite. These parts of the process include, but are not limited to, ethylene dichloride quenching columns, hydrochloric acid (HCl) separation columns, vinyl chloride separation columns, associated condensers, and dryers.

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(v) "Relief valve" means each pressure relief device including pressure relief valves, rupture disks, and other pressure control systems used to protect process components from overpressure conditions.

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2. By changing "all exhaust gases" to "each exhaust gas stream" and making other minor clarifying revisions in §61.62(a), §61.63(a), §61.64(a)(1),(b),(c),(d) as follows:

§61.62 Emission standard for ethylene dichloride plants

(a) Ethylene dichloride purification: The concentration of vinyl chloride in each exhaust gas stream (ultimately discharged to the atmosphere) for any equipment used in ethylene dichloride purification is not to exceed 10 ppm (averaged over three consecutive 1-hour periods), except as provided in §61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in §61.65(b)(6)(i) before being opened.

* * * * *

§61.63 Emission standard for vinyl chloride plants

An owner or operator of a vinyl chloride plant shall comply with the requirements of this section and §61.65.

(a) Vinyl chloride formation and purification: The concentration of vinyl chloride in each exhaust gases stream (ultimately discharged to the atmosphere) for any equipment used in vinyl chloride formation and/or purification is not to exceed 10 ppm (averaged over three consecutive 1-hour periods), except as provided in §61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in §61.65(b)(6)(i) before being opened.

* * * * *

§61.64 Emission standard for polyvinyl chloride plants

(a) Reactor: The following requirements apply to reactors:

(1) The concentration of vinyl chloride in each exhaust gas stream (utimately discharged to the atmosphere) for each reactor is not to exceed 10 ppm (averaged over three consecutive 1-hour periods), except as provided in paragraph (a)(2) of this section and §61.65(a).

(b) Stripper: The concentration of vinyl chloride in each exhaust gas stream (ultimately discharged to the atmosphere) for each stripper is not to exceed 10 ppm (averaged over three consecutive 1-hour periods), except as provided in §61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in §61.65(b)(6)(i) before being opened.

(c) Mixing, weighing, and holding containers. The concentration of vinyl chloride in each exhaust gases stream (ultimately discharged to the atmosphere) for each mixing, weighing, or holding container in vinyl chloride service which precedes the stripper (or the reactor if the plant has no stripper) in the plant process flow is not to exceed 10 ppm (averaged over three consecutive 1-hour periods), except as provided in §61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in §61.65(b)(6)(i) before being opened.

(d) Monomer recovery system. The concentration of vinyl chloride in each exhaust gas stream (ultimately discharged to the atmosphere) for each monomer recovery system is not to exceed 10 ppm (averaged over three consecutive 1-hour periods), except as provided in §61.65(a). This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in §61.65(b)(6)(i) before being opened.

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3. By revising existing paragraphs §61.64(a)(1) and (2) as follows:

§61.64 Emission standard for polyvinyl chloride plants

An owner or operator of a polyvinyl chloride plant shall comply with the requirements of this section and §61.65.

(a) Reactor. The following requirements apply to reactors:

(1) The concentration of vinyl chloride in all exhaust gases discharged to the atmosphere from each reactor is not to exceed 10 ppm, except as provided in paragraphs (a)(2) and (f)(1) and (2) of this section and §61.65(a).

(2) The reactor opening loss from each reactor is not to exceed 0.02 g vinyl chloride/kg (0.00002 lb vinyl chloride/lb) of polyvinyl chloride product, with the product determined on a dry solids basis. In the bulk process, the product means the gross product of prepolymerization and postpoplymerization.

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4. By adding paragraph (f) to §61.64 as follows:

§61.64 Emission standard for polyvinyl chloride plants

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(f) Reactor used as stripper. When a reactor is used as a stripper this paragraph applies in lieu of §61.64(a)(2):

(1) The emissions of vinyl chloride from reactor opening loss and all sources following the reactor used as a stripper is not to exceed 2.02 g/kg (0.00202 lb/lb) of polyvinyl chloride product for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solid basis.

(2) The emissions of vinyl chloride from reactor opening loss and all sources following the reactor used as a stripper is not to exceed 0.42 g/kg (0.00042 lb/lb) of polyvinyl chloride product for all other polyvinyl chloride resins with the product determined on a dry solid basis.

5. By eliminating paragraph (a)(3) to §61.64 and replacing paragraph (a) to §61.65 as follows:

§61.65 Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants

An owner or operator of an ethylene dichloride, vinyl chloride, and/or polyvinyl chloride plant shall comply with the requirements of this section.

(a) Relief valve discharges.

(1) Polyvinyl chloride plants (suspension, dispersion, latex, and bulk processes).

(i) Reactor. The number of discharges to the atmosphere from relief valves on polyvinyl chloride reactors is not to exceed the following limits except as provided in paragraph (a)(1)(iii) of this section. For all reactors producing suspension resins within a PVC plant, the number of relief valve discharges is not to exceed 0.035 discharges per 100 polymerization batches nor 4 discharges per year. For all reactors producing dispersion and latex resins within a PVC plant, the number of relief valve discharges is not to exceed 0.035 discharges per 100 polymerization batches. For all reactors including prepolymerization and postpolymerization reactors, producing bulk resins within a PVC plant the number of relief valve discharges is not to exceed 0.035 discharges per 100 polymerization batches.

(ii) The number of discharges to the atmosphere from relief valves on equipment (excluding polyvinyl chloride reactors) in vinyl chloride service is not to exceed 0.025 discharges per 100 polymerization batches nor 3

discharges per year except as provided in paragraph (a)(1)(iii) of this section.

(iii) The limits specified in paragraphs (a)(1)(i) and (a)(1)(ii) of this section may be exceeded when only one relief valve discharge to the atmosphere occurs during the 12-month period preceding the close of the 6-month reporting period.

(2) Polyvinyl chloride plants (solution and other continuous PVC production processes). The number of discharges to the atmosphere from relief valves on all equipment in vinyl chloride service is not to exceed 1 discharge per year.

(3) Ethylene dichloride and vinyl chloride plants. The number of discharges to the atmosphere from relief valves on equipment in vinyl chloride service is not to exceed 4 discharges per year.

(4) For every relief valve discharge to the atmosphere, the owner or operator shall record the identity of the source, the date and time of the discharge, the cause of the discharge, the approximate total vinyl chloride loss during the discharge, and the method used for determining the vinyl chloride loss. This information shall be submitted in writing to the Administrator as part of the reporting requirements of paragraph §61.70. This information shall be retained and made available for inspection by the Administrator for a minimum of 3 years.

6. By reproposing paragraphs (b)(3), (b)(7), (b)(8)(i), (b)(8)(iii), (b)(8)(iv) and (b)(8)(vi) to §61.65 as follows:

§ 61.65 Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants.

...owner or operator of an ethylene dichloride, vinyl chloride, and/or polyvinyl chloride plant shall comply with the requirements of this section.

(b) *Fugitive emission sources.*

(3) Leakage from pump, compressor and agitator seals:

(i) *Rotating pumps.* Vinyl chloride emissions from seals on all rotating pumps in vinyl chloride service are to be minimized by installing sealless pumps, pumps with double mechanical seals, or equivalent as provided in § 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66.

(ii) *Reciprocating pumps.* Vinyl chloride emissions from seals on all reciprocating pumps in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in § 61.66. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66.

(iii) *Rotating compressor.* Vinyl chloride emissions from seals on all rotating compressors in vinyl chloride service are to be minimized by installing compressors with double mechanical seals, or equivalent as provided in § 61.66. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66.

(iv) *Reciprocating compressors.* Vinyl chloride emissions from seals on all reciprocating compressors in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in § 61.66. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in § 61.66.

(v) *Agitator.* Vinyl chloride emissions from seals on all agitators in vinyl chloride service are to be minimized by in-

(7) *Samples.* Unused portions of samples containing at least 10 percent by weight vinyl chloride are to be returned to the process, and sampling techniques are to be such that sample containers in vinyl chloride service are purged into a closed process system.

(8) *Leak detection and elimination.*

(i) It includes a reliable and accurate vinyl chloride monitoring system for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method.

(iii) It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check is to be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to paragraph (b)(8)(vi) of this section. The calibration is to be done with either:

(A) A calibration gas mixture prepared from the gases specified in sections 5.2.1 and 5.2.2 of Test Method 106 and in accordance with section 7.1 of Test Method 106, or[38]

(B) A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than ±5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of Test Method 106. The requirements in section 5.2.3.1 and 5.2.3.2 of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.[38]

(iv) The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and the size and physical layout of the plant.

(vi) It contains a definition of leak which is acceptable when compared with the background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

7. By replacing paragraph (b)(4) to §61.65 as follows:

§61.65 Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants

* * * * *

(b) Fugitive emission sources

* * *

(4) Leakage from relief valves. Vinyl chloride emissions due to leakage from each relief valve on equipment in vinyl chloride gas/vapor service are to be minimized as provided in §61.242-4 of Subpart V of this part.

8. By replacing paragraphs (b)(8), (b)(8)(ii), and (b)(8)(v) to §61.65 as follows:

§61.65 Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants

* * * * *

(b) Fugitive emission sources

(8) Leak detection and elimination. Vinyl chloride emissions due to leaks from equipment in vinyl chloride service are to be minimized by instituting and implementing a leak detection and repair program consistent with the requirements of Subpart V of this part. The program is to be implemented within 90 days of the effective date of these regulations, unless a waiver of compliance is granted under §61.11. Approval of a program will be granted by the Administrator provided he finds:

* * * * *

(ii) It includes a reliable and accurate portable hydrocarbon detector to be used consistent with the provisions of §61.245 of Subpart V of this part.

* * * * *

(v) It concerns a plan of action to be taken when a leak is detected consistent with Subpart V of this part.

9. By adding paragraph (g)(5) to §61.67 and moving the existing paragraph (g)(5) to (g)(6) as follows:

§61.67 Emission tests

* * * * *

(g) * * *

(5) The emissions for which an emission limit is prescribed in §61.64(f) are to be determined. The calculation of VC losses based on measured resin residual and measured reactor opening loss is as follows:

(i) Information required:

(A) PPMVC - ppm residual vinyl chloride after stripping (from test at §61.67(g)(3)). If more than one batch is produced between reactor openings, PPMVC is to be determined by averaging the residual vinyl chloride measurements from each batch;

(B) PVCW - weight of PVC in reactor dry (kg) (from recipe);

(C) RV - reactor vacuum (mm Hg gauge) at end of strip (from plant instrument);

(D) RT - reactor temperature (°C) at end of strip (from plant instrument);

(E) RC - reactor capacity (m^3); and

(F) WV - water volume (m^3) (from recipe).

(G) NB - number of batches between openings.

(ii) Determine:

VPW - vapor pressure water (mm Hg) using the following table.

(°C) RT	(mm Hg) VPW	(°C) RT	(mm Hg) VPM
40	55.3	86	450.9
41	58.3	87	468.7
42	61.5	88	487.1
43	64.8	89	506.1
44	68.3	90	525.8
45	71.9	91	546.0
46	75.6	92	567.0
47	79.6	93	588.6
48	83.7	94	610.9
49	88.0	95	633.9
50	92.5	96	657.6
51	97.2	97	682.1
52	102.1	98	707.3
53	107.2	99	733.2
54	112.5	100	760.0
55	118.0		
56	123.8		
57	129.8		
58	136.1		
59	142.6		
60	149.4		
61	156.4		
62	163.8		
63	171.4		
64	179.3		
65	187.5		
66	196.1		
67	205.0		
68	214.2		
69	223.7		
70	233.7		
71	243.9		
72	254.6		
73	265.7		
74	277.2		
75	289.1		
76	301.4		
77	314.1		
78	327.3		
79	341.0		
80	355.1		
81	369.7		
82	384.9		
83	400.6		
84	416.8		
85	433.6		

(iii) Calculate:

(A) PVCV - PVC volume (m^3);

(B) RVSV - reactor vapor space volume (m^3); and

(C) VCE/PVC - grams VC emitted per kilogram PVC.

(iv) Procedure:

(A) Step (1) Calculate PVCV:

$$PVCV = \frac{PVCW}{\frac{833\ kg}{m^3}}$$

(B) Step (2) Calculate RVSV:

$$RVSV = RC - WV - PVCV$$

(C) Step (3) Determine VPW by entering Table 1 with value of RT and finding corresponding VPW.

(D) Step (4) Calculate grams VC emitted per kilogram PVC produced (in one reactor batch)

$$VCE/PVC = (PPMVC \times 10^{-3}) + \frac{(760 - RV - VPW) \times RVSV \times 1{,}002}{NB \times PVCW \times (273 + RT)}$$

(6) Previously paragraph (g)(5).

10. By adding paragraph (h) to §61.67 as follows:

(h)(1) Each piece of equipment within a process unit that can conceivably contain equipment in vinyl chloride service is presumed to be in vinyl chloride service unless an owner or operator demonstrates that the piece of equipment is not in vinyl chloride service. For a piece of equipment to be considered not in vinyl chloride service, it must be determined that the percent vinyl chloride content can be reasonably expected never to exceed 10 percent by weight for liquid streams and 10 percent by volume for gas streams. For purposes of determining the percent vinyl chloride content of the process fluid that is contained in or contacts equipment, procedures that conform to the methods described in ASTM Method D-2267 (incorporated by reference as specified in §61.18) shall be used.

(2)(i) An owner or operator may use engineering judgment rather than the procedures in paragraph (1) to demonstrate that the percent vinyl chloride content does not exceed 10 percent by weight for liquid streams and 10 percent by volume for gas streams, provided that the engineering judgment demonstrates that the vinyl chloride content clearly does not exceed 10 percent. When an owner or operator and the Administrator do not agree on whether a piece of equipment is not in vinyl chloride service, however, the procedures in paragraph (1) shall be used to resolve the disagreement.

(ii) If an owner or operator determines that a piece of equipment is in vinyl chloride service, the determination can be revised only after following the procedures in paragraph (1).

(3) Samples used in determining the percent vinyl chloride content shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

11. By revising paragraph (f) of §61.68 as follows:

§61.68 Emission tests

* * * * *

(f) The owner or operator shall retain at the plant and make available, upon request, for inspection by the Administrator, for a minimum of 3 years, records of emission test results and other data needed to determine emissions.

12. By changing the title of §61.70 from "Semiannual report" to "Reporting".

13. By revising paragraph (a) of §61.70 as follows:

§61.70 Reporting

(a) The owner or operator of any source to which this subpart applies shall submit to the Administrator on September 15 and March 15 of each year a report in writing containing the information required in paragraphs (c), (d) and (e) of this section and on December 15 and June 15 of each year a report in writing containing the information required in paragraph (e) of this section. The first report is to be submitted following the first full 3 month reporting period after the initial report is submitted.

14. By revising paragraph (c)(1) of §61.70 as follows:

§61.70 Reporting

* * * * *

(c) * * *

(1) The owner or operator shall include in the report a record of each period of emissions which averaged over three consecutive 1-hour periods (each hour commencing on the hour) are in excess of the emission limits in §61.62(a) or (b), §61.63(a), or §61.64(a)(1), (b), (c), or (d), or for any control system to which reactor emissions are required to be ducted in §61.64(a)(2) or to which fugitive emissions are required to be ducted in §61.65(b)(i)(ii), (b)(2), (b)(5), (b)(6)(ii), or (b)(9)(ii). The emissions are to be measured in accordance with §61.68. If emissions in excess of the emission limits are not detected, the report shall contain a statement that no excess emissions have been detected.

15. By revising paragraph (c)(2)(i) of §61.70 as follows:

§61.70 Reporting

* * * * *

(c) * * *

(2)(i) If batch stripping in the reactor or other vessel is used, one representative sample of polyvinyl chloride resin is to be taken from each batch of each grade of resin immediately following the completion of the stripping operation, and identified by resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

16. By revising paragraph (c)(2)(v) of §61.70 as follows:

§61.70 Reporting

* * * * *

(c) * * *

(2)(v) The report to the Administrator by the owner or operator is to include a record of any 24-hour average resin vinyl chloride concentration, as determined in this paragraph, in excess of the limits prescribed in §61.64(e). The vinyl chloride content found in each sample required by paragraphs (c)(2)(i) and (c)(2)(ii) of this section shall be averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin processed by the stripper(s) that calendar day, according to the following equation:

$$A_{T_i} = \frac{\sum_{j=1}^{n} P_{G_j} M_{G_j}}{Q_{T_i}} = \frac{P_{G_1} M_{G_1} + P_{G_2} M_{G_2} + \cdots + P_{G_n} M_{G_n}}{Q_{T_i}}$$

where:

A = 24-hour average concentration of type T_i resin in ppm (dry weight basis).
Q = Total production of type T_i resin over the 24-hour period, in kg.
T_i = Type of resin: $i = 1, 2 \ldots m$ where m is total number of resin types produced during the 24-hour period.
M = Concentration of vinyl chloride in one sample of grade G_j resin in ppm.
P = Production of grade G_j resin represented by the sample, in kg.
G_j = Grade of resin, e.g., G_1, G_2, and G_n.
n = Total number of grades of resin produced during the 24-hour period.

If average resin vinyl chloride concentrations in excess of the limits are not measured, the report shall include a statement that excess resin vinyl chloride concentrations have not been measured.

* * * * *

17. By revising paragraph (c)(3) of §61.70 as follows:

§61.70 Reporting

* * * * *

(c) * * *

(3) The owner or operator shall include in the report a record of any emissions from each reactor opening in excess of the emission limits prescribed in §61.64 (a)(2). Emissions are to be determined in accordance with §61.67(g)(5), except that emissions for each reactor are to be determined. If emissions in excess of the emission limits are not detected, the report shall include a statement that excess emissions have not been detected.

18. By adding paragraphs (d) and (e) to §61.70 as follows:

§61.70 Reporting

* * * * *

(d) The owner or operator shall include in the report a record of relief valve discharges as prescribed in §61.65 (a)(4).

(1) In addition to the information required by §61.65(a)(4), the owner or operator shall report exceedences of the relief valve discharge frequency limits prescribed in §61.65 (a) to be determined as follows:

(i) For polyvinyl chloride plants producing dispersion, latex or bulk resins, the relief valve discharge frequency from polyvinyl chloride reactors is to be determined using the following equation. Separate calculations are to be made for each resin type (t) as defined:

$$F_t = \frac{N}{Y}$$

where F_t = relief valve discharge frequency per 100 polymerization batches from all reactors producing resin type t

N = total number of relief valve discharges during the 12-month period preceding the close of the 6-month reporting period from all reactors producing resin type t

Y = total number of polymerization batches of resin type t during the 12-month period preceding the close of the 6-month reporting period divided by 100

t = resin type: dispersion (including latex) or bulk resin type

(ii) For polyvinyl chloride plants producing suspension resins, the relief valve discharge frequency from polyvinyl chloride reactors is to be determined in two ways using the following equations:

$$F_{so} = \frac{N}{Y}; \text{ and } F_{s1} = N$$

where F_{so} = relief valve discharge frequency per 100 polymerization batches from all reactors producing suspension resin

F_{s1} = relief valve discharge frequency per 12-month period from all reactors producing suspension resin

N = total number of relief valve discharges during the 12-month period preceding the close of the 6-month reporting period from all reactors producing suspension resin

Y = total number of polymerization batches of suspension resin during the 12-month period preceding the close of the 6-month reporting period divided by 100

(iii) For polyvinyl chloride plants producing suspension, dispersion, latex, or bulk resins, the relief valve discharge frequency from all other equipment (excluding polyvinyl chloride reactors) is to be determined in two ways using the following equations:

$$F_0 = \frac{N}{Y}; \text{ and } F_1 = N$$

where F_0 = relief valve discharge frequency per 100 polymerization batches from all equipment (excluding reactors)

F_1 = relief valve discharge frequency per 12-month period from all equipment (excluding reactors)

N = total number of relief valve discharges during the 12-month period preceding the close of the 6-month reporting period from all equipment (excluding reactors)

Y = total number of polymerization batches of all resin types combined divided by 100

(iv) For polyvinyl chloride plants using the solution process or any other continuous production process, the relief valve discharge frequency is the summation of each relief valve discharge from all equipment types during the 12-month period preceding the close of the 6-month reporting period.

(v) For ethylene dichloride/vinyl chloride plants, the relief valve discharge frequency is the summation of each relief valve discharge from all equipment types during the 12-month period preceding the close of the 6-month reporting period.

(vi) A polymerization batch consists of each sequence of charging VC and other materials to the reactor, heating reactor contents, polymerization of reactor contents, and removal of reactor contents including any incomplete sequence that is aborted after charging VC to the reactor. For bulk resin production plants, a single "polymerization batch" includes both prepolymerization and postpolymerization reactor operations.

(e) The owner or operator shall include in the report the number of relief valve discharges to the atmosphere during the 3-month period preceding the report from each of the following sources: suspension resin production reactors; dispersion and latex resin production reactors; bulk resin production reactors; all nonreactor equipment in PVC plants; all equipment used in solution process and other continuous process PVC plants; and all equipment in EDC/VC plants.

19. By revising paragraph (a) of §61.71 as follows:

§61.71 Recordkeeping

(a) The owner or operator of any source to which this subpart applies shall retain the following information at the source and make it available for inspection by the Administrator for a minimum of 3 years:

* * * * *

20. By adding the words "vinyl chloride" to the definition of the term "volatile hazardous air pollutants" in §61.241 of Subpart V as follows:

§61.241 Definitions

* * * * *

"Volatile hazardous air pollutant" or "VHAP" means a substance regulated under this part for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene is a VHAP. Vinyl chloride is a VHAP.