A

EPA-450/3-86-004

Vinyl Chloride Standards: Responses to Comments on January 1985 Proposed Revisions

Emission Standards and Engineering Division

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, NC 27711

September 1986

VAB.0001119861

This report has been reviewed by the Emission Standards and Engineering Division of the Office of Air Quality Planning and Standards, EPA, and approved for publication. Mention of trade names or commercial products is not intended to constitute endorsement or recommendation for use. Copies of this report are available through the Library Services Office (MD-35), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711; or, for a fee, from the National Technical Information Services, 5285 Port Royal Road, Springfield, Virginia 22161.

VAB.0001119862

VINYL CHLORIDE STANDARD: RESPONSES TO COMMENTS ON JANUARY 1985 PROPOSED REVISIONS

EMISSION STANDARDS AND ENGINEERING DIVISION

U.S. Environmental Protection Agency
Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

SEPTEMBER 1986

VAB.0001119863

VAB.0001119864

TABLE OF CONTENTS

Section	Page
1.0 SUMMARY	1-1
1.1 SUMMARY OF CHANGES SINCE PROPOSAL	1-1
1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION	1-3
2.0 SUMMARY OF PUBLIC COMMENTS AND RESPONSES	2-1
2.1 GENERAL POLICY AND LEGAL ISSUES	2-1
2.2 REVISIONS TO RELIEF VALVE DISCHARGE STANDARD	2-10
2.3 REVISIONS TO LEAK DETECTION AND REPAIR REQUIREMENTS	2-22
2.4 DEFINITIONS	2-41
2.5 REVISIONS TO OTHER PARTS OF THE STANDARD	2-58
2.6 MISCELLANEOUS	2-65
3.0 PETITION FOR RECONSIDERATION	3-1

VAB.0001119865

A

1.0 SUMMARY

On January 9, 1985, the U. S. Environmental Protection Agency (EPA) proposed revisions to the national emission standard for vinyl chloride (VC) (50 FR 1182) under authority of Section 112 of the Clean Air Act. The standard limits atmospheric emissions of VC from plants producing ethylene dichloride (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 (e.g., polyvinyl chloride (PVC)). The January 9, 1985, Federal Register notice proposed administrative and clarifying revisions to the VC standard based on a review of the standard.

Public comments were requested on the proposal in the Federal Register notice. A total of 16 comment letters were received. Commenters included industry representatives, representatives of industry trade organizations, State and Federal legislators, one environmental group and one State regulatory agency. The public comments are summarized in this document along with responses to the comments. The comments and responses serve as the basis for changes and clarifications to the revised standard made between proposal and promulgation.

1.1 SUMMARY OF CHANGES SINCE PROPOSAL

In response to the public comments, one major change and a few minor changes and clarifications have been made in the proposed revisions to the VC standard. The major change involves the proposed reformatting of the relief valve discharge standard. Several comments were received that resulted in withdrawal of the proposed requirements for relief valve discharges.

Other comments resulted in several minor clarifications to definitions and other regulatory language.

VAB.0001119866

- The revised definition of "EDC purification" in the proposed standard has been further clarified by specifically exempting intermediate and final product storage.
- The definition of relief valve has been modified to exclude two specific pressure control systems: polymerization shortstop systems and refrigerated water systems. Also, emissions from pressure relief devices that control exhaust gas flow to incinerators are not considered relief valve discharges.
- The definition of leak has been clarified by adding the EPA test method on which leak measurements are to be based. The provision specifying that leaks are emissions not regulated under exhaust gas provisions has been dropped.
- Three-hour averaging periods have been specified in the oxychlorination vent standard and in three other provisions where exhaust gas limits are prescribed. (Three-hour averages were specified in all other exhaust gas provisions in the proposed standard.)
- Certain open-ended lines have been made exempt from Subpart V requirements.
- The provision allowing plants to demonstrate effectiveness of existing leak detection and repair programs through a performance test of a sample of valves has been revised to more clearly indicate the number of valves required to be tested.
- Method 601 of 40 CFR 136.3 was approved and incorporated by reference for measurement of VC in inprocess wastewater.
- The American Society of Testing and Materials (ASTM) method for determining by process sample whether equipment is in VC service has been incorporated by reference.
- The definition of connector in Subpart V has been modified to allow exemption from reporting and recordkeeping requirements for all screwed and welded connectors and flanged connectors that are covered by insulation or other materials.

VAB.0001119867

1.2 SUMMARY OF IMPACTS OF PROMULGATED ACTION

No changes in the environmental, energy and economic impacts of the standard have occurred since proposal. Further, since no major revisions to the standard were proposed, the impacts of the original standard remain generally unchanged. These impacts are described in the preamble to the proposed revisions (50 FR 1182).

VAB.0001119868

2.0 SUMMARY OF PUBLIC COMMENTS AND RESPONSES

This document includes responses to public comments on the proposed revisions to the VC standard. A list of the commenters, their affiliations, and the EPA docket numbers assigned to their correspondence is given in Table 2-1. The comments are organized according to topic in the following sections.

2.1 General Policy and Legal Issues
2.2 Revisions to Relief Valve Discharge Standard
2.3 Revisions to Leak Detection and Repair Requirements
2.4 Definitions
2.5 Revisions to Other Parts of the Standard
2.6 Miscellaneous

2.1 GENERAL POLICY AND LEGAL ISSUES

<u>Comment</u> Level of Standard

Six commenters (IV-D-1, IV-D-2, IV-D-6, IV-D-11, IV-D-12, IV-D-13) addressed the level of control associated with the VC standard. Three commenters (IV-D-1, IV-D-2, IV-D-6) agreed with the EPA's decision not to regulate additional sources or change the quantitative emission limits of the standard. They alleged no basis exists for making the standard more stringent based on health effects, and that there is no new technology which would justify a more stringent standard. One commenter (IV-D-6) further stated that in light of the EPA's findings that other regulations have been effective in reducing VC emissions, a more stringent standard under Section 112 cannot be justified. In contrast, four other commenters (IV-D-11, IV-D-12, IV-D-13, IV-D-16) stated that the level of the standard would be weakened by the

VAB.0001119869

TABLE 2-1. LIST OF COMMENTERS ON PROPOSED REVISIONS TO THE VINYL CHLORIDE STANDARD

Docket Item Number[a]	Commenter and Affiliation
IV-D-1	W. C. Holbrook The Vinyl Institute 355 Lexington Avenue New York, New York 10017 Date: March 15, 1985
IV-D-2	David L. Lull Occidental Chemical Corporation P.O. Box 699 Pottstown, Pennsylvania 19464 Date: March 19, 1985
IV-D-3	J. C. Ledvina Vista Chemical Company P.O. Box 19029 Houston, Texas 77224 Date: March 21, 1985
IV-D-4	R. R. Kienle Shell Oil Company P.O. Box 4320 Houston, Texas 77210 Date: March 19, 1985
IV-D-5	Paul M. King PPG Industries, Inc. One PPG Place Pittsburgh, Pennsylvania 15272 Date: March 22, 1985
IV-D-6	John T. Barr Air Products and Chemicals, Inc. P.O. Box 538 Allentown, Pennsylvania 18105 Date: March 20, 1985
IV-D-7	William T. Newman Georgia Gulf Corporation P.O. Box 629 Plaquemine, Louisiana 70765-0629 Date: March 20, 1985

[a]The docket number for this project is A-81-21. Dockets are on file at EPA's Central Docket Section in Washington, D.C.

VAB.0001119870

TABLE 2-1 (Continued). LIST OF COMMENTERS ON PROPOSED REVISIONS TO THE VINYL CHLORIDE STANDARD

Docket Item Number[a]	Commenter and Affiliation
IV-D-8	T. E. Lingafelter Dow Chemical U.S.A. 2030 Willard H. Dow Center Midland, Michigan 48640 Date: March 19, 1985
IV-D-9	Geraldine V. Cox Chemical Manufacturers Association 2501 M Street, N.W. Washington, D.C. 20037 Date: March 25, 1985
IV-D-10	Charles A. Johnson National Solid Wastes Management Association 1730 Rhode Island Avenue, N.W. Washington, D.C. 20036 Date: March 21, 1985
IV-D-11	Jeffrey G. Mack Delaware House of Representatives Dover, Delaware 19904 Date: March 21, 1985
IV-D-12	David D. Doniger National Resources Defense Council 1350 New York Avenue, N.W. Washington, D.C. 20005 Date: March 25, 1985
IV-D-13	Tom Carper U.S. House of Representatives Washington, D.C. 20515 Date: March 25, 1985
IV-D-14	James D. Fannin The BF Goodrich Company 6100 Oak Tree Boulevard Cleveland, Ohio 44131 Date: March 19, 1985

[a]The docket number for this project is A-81-21. Dockets are on file at EPA's Central Docket Section in Washington, D.C.

VAB.0001119871

TABLE 2-1 (Concluded). LIST OF COMMENTERS ON PROPOSED REVISIONS TO THE VINYL CHLORIDE STANDARD

Docket Item Number[a]	Commenter and Affiliation
IV-D-15	W. Bailey Barton Borden Inc. 165 N. Washington Avenue Columbus, Ohio 43215 Date: March 25, 1985
IV-D-16	Patricia L. Norton Louisiana Department of Environmental Quality P.O. Box 44066 Baton Rouge, Louisiana 70804 Date: April 3, 1985

[a]The docket number for this project is A-81-21. Dockets are on file at EPA's Central Docket Section in Washington, D.C.

VAB.0001119872

proposed changes and should be made more stringent. One commenter (IV-D-11) stated that EPA should replace the standard with one which provides additional risk reduction. The other commenter (IV-D-13) argued that the level of the standard should be based on the protection of public health and the environment, rather than the ability of industry to comply with the standard. The commenter stated the level of the standard should provide incentive for the development of improved emission control systems.

Response

These comments relate to how EPA selects the level of control for standards under Section 112 of the Clean Air Act. As noted by these commenters, standards set by EPA under Section 112 reflect the level of control necessary to provide an ample margin of safety to protect public health. However, in contrast to some of the commenters, EPA believes that this level of control must also be achievable to be meaningful and to avoid being arbitrary and capricious. The VC standard, established in 1976 as an appropriate level of control under Section 112, represented the most stringent level of control that can be achieved by VC and PVC plants based on best available technologies, while avoiding unreasonable cost. Because the revisions to the standard proposed on January 9, 1985, did not substantively change the level of control associated with the standard, EPA considered these comments in the context of the level of control established in 1976. As discussed in more detail in the following response, EPA concluded that the level of control in the VC standard is appropriate.

Comment Zero Discharge Goal and Consideration of Costs

Two commenters (IV-D-1, IV-D-6) concurred with the EPA's conclusion that Section 112 of the Clean Air Act does not require emissions of VC to be eliminated. One of the commenters (IV-D-1) added that the 1977 proposed amendments were based on the "erroneous premise" that a zero discharge level should be achieved. In contrast, another commenter (IV-D-12) pointed out that EPA previously recognized a zero emissions goal.

VAB.0001119873

Three commenters (IV-D-6, IV-D-8, IV-D-12) addressed the use of costs and cost effectiveness in the development of the standard. One commenter (IV-D-6) emphasized the importance of a sound, cost-effective regulation. The second commenter (IV-D-8) stated that the proposed modifications to the standard are aimed at reducing emissions in the most cost-effective manner, even though some new requirements have been added. Conversely, two commenters (IV-D-11, IV-D-12) objected to the EPA's consideration of costs in developing the VC standard.

Response

In the EPA's judgment, the VC standard protects the public health within the meaning of Section 112, and EPA may consider cost and feasibility in setting the standard. The EPA views are explained in the 1975-76 VC rule-making, and in the Agency's brief in NRDC v. EPA, No. 85-1150 (D.C. Cir). The NRDC/EDF provided no new information on this issue.

Comment — Emission Standards vs. Equipment and Work Practice Standards

The commenter (IV-D-16) stated that uncertainties in the existing standard have required enforcement personnel to develop enforcement policies outlining the level of effort expected of plants for compliance. The commenter recommended that revisions to the standard specify required equipment and operating practices for meeting the existing limits. Revising the standard in this manner would ensure continued strict control of VC emissions while providing industry and enforcement personnel with specific guidance on required level of effort. The result would be more effective enforcement of the standard.

Response

Under the requirements of the Clean Air Act, as amended, EPA is to set emission (i.e., performance) limits wherever possible and to allow the owners and operators of affected facilities to achieve that limit in any way available. In the case of VC emissions, it is both possible and appropriate

VAB.0001119874

to establish an emission limit for most sources. Thus, EPA can not require the use of specific types of equipment for most of the sources covered by the standard. However, where it is not practicable to set an emission standard, EPA has required the use of equipment and other work practices.

Comment Evidence of Human Health Risk

One commenter (IV-D-1) questioned the need for a standard regulating VC emissions on the basis of health risks, citing the absence of human deaths related to VC exposure in the vicinity of regulated plants. Another commenter (IV-D-14) stated that the absence of predicted cancer cases caused by VC exposure are proof of the success of the VC standard.

Response

Generally, the absence of specific evidence linking human deaths related to VC emissions to the environment is not indicative of the absence of risk from these emissions. At the time the original VC standard was developed, unit risk factors were developed based on studies of the health effects from exposure to VC emissions. These health studies implicated instances of liver angiosarcoma, other cancers, and noncarcinogenic disorders in animals from inhalation of VC. While there have been no recent epidemiological studies relating to exposure to VC emissions, instances of liver angiosarcoma in individuals exposed to VC have been reported. As part of the review of the VC standard, the EPA carcinogen assessment group reviewed the original health studies and subsequent health information which confirmed the link between VC exposure and brain and liver cancer. The review concluded that the health effects associated with VC and the risk estimates developed at the time of the original standard remain valid.

To the extent that the original VC standard has been effective in reducing or eliminating incidences of cancer due to exposure to VC, then the efforts of EPA, industry and individuals in controlling VC emissions have been successful. However, given the latency period for health effects and the existence of confounding variables in exposure and development of cancer, both the Agency and industry should continue to make reasonable efforts to continue controlling VC emissions.

VAB.0001119875

Comment — Technology Demonstration Requirements

One commenter (IV-D-12) stated that there is no language in Section 112 which would require a control technology or emission level to be demonstrated in order to serve as the basis of a NESHAP. The commenter pointed to the statement in the preamble that "10 ppmv represents the lowest level of control which has been consistently achieved" as indicative that EPA was applying such a requirement in evaluating alternative exhaust gas limits. The commenter stated that the requirements of Section 112 are intended to be technology forcing, based on projections of the capabilities of technology rather than on past achievements.

Response

The VC standard was established at a level which was determined to be achievable using best available control technologies. The data on VC emissions control indicate that a 5 ppm emission limit would not be consistently achievable, and EPA selected a 10 ppm emission limit to reflect the level of control required by the standard. In doing so, EPA considered both the feasibility of this level of control and the health impacts resulting from this control level including that the standard provides an ample margin of safety for public health.

Comment — Withdrawal of 1977 Proposal

Three commenters (IV-D-4, IV-D-7, IV-D-14) stated their support for the EPA's withdrawal of the 1977 proposed amendments to the standard.

Response

As discussed in the preamble (50 FR 1183), EPA did not believe it was appropriate to leave the proposed amendments to the VC standard in effect or to promulgate amendments based on the proposed amendments. This decision was the outcome of a review procedure that considered the 1977 proposal, as well as a recent reevaluation of existing and new control technologies, of VC sources not regulated by the standard and of enforcement and compliance experience since promulgation of the standard.

VAB.0001119876

Comment Effectiveness of VC Standard

One commenter (IV-D-14) stated that the industry has effectively implemented the VC standard as evidenced by the fact that actual VC emission reductions under the standard have exceeded the original standard estimates. Another commenter (IV-D-15) also stated that the VC standard has been successful in greatly reducing VC emissions, and pointed out the considerable expense to plants in Louisiana to install control equipment and implement operating procedures to meet the standard.

Response

No response necessary.

Comment Clarification of Preamble and Pegulation

Three commenters (IV-D-1, IV-D-6, IV-D-9) stated that the explanation of the standard contained in the preamble and the language of the standard itself need to be clarified and made more consistent. One commenter (IV-D-1) suggested that the interpretative language of the preamble be incorporated into the standard, where appropriate, to help ensure consistent interpretation. The commenter stressed the importance of resolving uncertainties associated with the standard to prevent unnecessary cost to the industry and EPA. A second commenter (IV-D-6) also emphasized the need to remove all ambiguity from the standard to prevent the costs of negotiation and litigation caused by differing interpretations of the standard.

Response

One purpose of the proposed revisions was to enhance the clarity of the requirements of the VC standard. All specific instances of confusion over provisions of the standard and the language of the preamble cited by the commenters have been addressed in other responses directed toward the relief valve definition, the leak detection requirements, the applicability of the standard to storage tanks, the three-hour averaging period, and other issues. The EPA believes that with these clarifications the requirements of the standard are clear and consistent with the intent of this action.

VAB.0001119877

Comment — Need to Update Standard

The commenter (IV-D-14) emphasized the need to update the standard based on eight years of experience by EPA and industry since promulgation of the standard. He noted that EPA has effectively analyzed experience under the standard in developing revisions.

Response

No response necessary.

Comment — Authority for Work Practice Standards

The commenter (IV-D-1) restated industry's position during the original rulemaking that EPA had no legal authority at that time to promulgate work practice rules.

Response

What the Agency's authority was in 1976 is not a subject of this rulemaking.

2.2 REVISIONS TO RELIEF VALVE DISCHARGE STANDARD

2.2.1 Numerical Limit Format

Comment — Numerical Limit Format

Seven commenters (IV-D-2, IV-D-7, IV-D-9, IV-D-12, IV-D-13, IV-D-14, IV-D-16) addressed the numerical limit format selected for the relief valve discharge standard.

Four commenters (IV-D-11, IV-D-12, IV-D-13, IV-D-16) objected to the proposal to grant an allowable relief valve discharge rate. One of these commenters (IV-D-16) stated that although the proposed revised relief valve discharge requirements more clearly specify which relief valve discharges are in violation of the standard, they do not penalize discharges which may be caused by gross negligence. The second commenter (IV-D-12) urged EPA to retain the existing standard that relief valve discharges are violations of the standard unless unpreventable. The commenter stated that EPA has presented

VAB.0001119878

no analysis of the "significant" burden on Agency resources which was cited as one reason for the proposal. Further, the commenter stated that preventable discharges should be avoided as a matter of principle, and pointed out that relief valve discharges are the single largest remaining source of VC emissions at some plants. Finally, the commenter objected to the allowable discharge provision as being a significant weakening of the standard since current EPA enforcement policy has routinely concluded that the vast majority of releases are preventable. The commenter expressed concern that the numerical limits would legitimize the current discharge rates by industry, regardless of the ability to lower them further. The third commenter (IV-D-13) stated that the proposed numerical standards are not consistent with the Congressional intent for the regulation of hazardous substances. The commenter pointed out that the proposed standards would be less stringent than the requirements of a consent agreement reached in a recent case against Formosa Plastics in Delaware. The commenter stated that the recent relief valve discharge performance of the Formosa Plastics facility would not have been affected by the proposed standard, even though it was the top VC emitter in the country. Both commenters IV-D-11 and IV-D-12 urged EPA to drop the proposed revisions and to develop more stringent requirements for relief valve discharges.

Four commenters (IV-D-2, IV-D-7, IV-D-9, IV-D-14) expressed general support for the EPA's proposal of numerical limits. One of these commenters (IV-D-14) stated his belief that the proposed numerical limits for relief valve discharges are practical but sufficiently stringent to require further progress by industry in preventing discharges. Another of these commenters (IV-D-2) further urged EPA to adopt an enforcement policy of reviewing all relief valve discharge incidents in excess of the limits and suspending enforcement if those incidents were deemed to be emergencies.

Response

At the time the original VC standard was developed, it was recognized that relief valves and other safety relief devices are a potential source of VC emissions which are controllable through a combination of equipment and work practices. However, information was not available on the effectiveness

VAB.0001119879

of control measures on relief valve discharge performance. The original standard regulated relief valve discharge emissions by prohibiting all nonemergency discharges. Emergency discharges are described as those which could not have been avoided by taking measures to prevent the discharge. This standard is an emission or performance standard that limits all VC emissions except those resulting from emergency discharges.

During the review of the VC standard begun in 1980 and completed in 1982, including enforcement and compliance experience under the VC standard, EPA enforcement personnel reported significant manpower and resource requirements were being used to monitor compliance with the relief valve discharge standard. This was primarily due to the effort required to individually evaluate each relief valve discharge for preventability. The review study also found that many producers were uncertain about whether they complied with the relief valve discharge standard. The review study concluded that the format of the standard should be reviewed, primarily to reduce the enforcement burden on EPA and to improve industry's understanding of compliance requirements. Based on the recommendations of the review study, EPA set out to establish a standard for relief valve discharges based on numerical discharge limits reflecting performance representative of compliance with the original standard. The results of this effort to reformat the relief valve discharge standard were proposed in January 1985 (see 50 FR 1182).

In response to comments objecting to the proposed revised relief valve discharge requirements, EPA has reconsidered the proposed action to add new numerical limits for relief valve discharges. In particular, EPA has reviewed the basis for the review study recommendations that the format of the standard be changed (i.e., to reduce enforcement burden and to improve understanding of compliance requirements). During the five years since the review study was conducted, efficiency of activities relating to the enforcement of relief valve discharge standard has improved. This is due in large part to experience established over the last 5 years in enforcing the original standard. As a result, EPA enforcement personnel consider this standard to be much less resource and manpower intensive. Furthermore, enforcement actions taken by EPA against a number of plants since the time of the review study have served

VAB.0001119880

two purposes. First, they have resulted in improved control of relief valve discharges accompanied by a reduction in relief valve discharge emissions. Second, some of these enforcement actions have resulted in consent decrees which outline specific measures required to be taken by the individual plant for compliance purposes. These consent decrees not only serve to clarify compliance requirements for the subject plant but serve as guidelines for all plants of the types of measures deemed appropriate by EPA for controlling relief valve discharges. In this way, understanding of compliance requirements has been appreciably improved. Because these recent findings tend to invalidate the major conclusions of the review study, EPA believes it is no longer appropriate to reformat the original standard. Consequently, the proposed numerical limits for relief valve discharges are not being promulgated.

2.2.2 Level of Numerical Limits

Comment — Cap on Mass Emissions, 100-Pound *De Minimus* Exemption

The commenter (IV-D-13) stated that the revised relief valve discharge limits should also include a cap on the size of discharges so that the quantity of VC emitted is regulated in addition to the frequency of discharge events.

Two commenters (IV-D-2, IV-D-7) recommended that relief valve discharges less than 100 pounds be exempted from the revised relief valve discharge requirements. One of the commenters (IV-D-7) emphasized the small environmental impact of brief relief valve "chatter" incidents. The second commenter (IV-D-2) stated that the administrative burden and personnel requirements for investigating, documenting, reporting, and negotiating minor discharges are disproportionate to the corresponding hazard to human health.

Response

As discussed in Section 2.2.1, EPA has decided not to reformat the original standard with numerical limits. The original relief valve discharge standard provides for review of all discharges, including both large and small discharges. Any relief valve discharge which is preventable is in violation of the standard and subject to enforcement.

VAB.0001119881

Comment Numerical Limit Applied to EDC/VC Production Units

Three commenters (IV-D-1, IV-D-5, IV-D-14) provided recommendations on applying the relief valve discharge limit for EDC/VC plants to multi-unit complexes and expanded plants. Commenter IV-D-1 requested that the limit of 4 discharges per year be applied to each individual production unit within a plant. Commenter IV-D-5 suggested that the limit be applied separately to each discrete plant under separate management in a multi-plant complex. Commenter IV-D-1 also recommended that the relief valve discharge limit be applied to each new EDC/VC production unit added to an existing facility. Alternatively, Commenter IV-D-1 agreed with the suggestion of another commenter (IV-D-14) that the limit for expanded EDC/VC plants be increased in proportion to the increase in production capacity.

Response

As discussed in Section 2.2.1, EPA has decided not to revise the relief valve discharge requirements by adding numerical limits. As done currently, EPA will continue to evaluate the preventability of each discharge.

2.2.3 Control Measures

Comment Equipment Requirements in Relief Valve Discharge Standard

The commenter (IV-D-16) requested that the revised standard delineate the types of measures considered adequate to prevent unnecessary discharges from relief valves and failed equipment. In particular, the commenter (IV-D-16) recommended that a provision be added to the standard requiring a level of redundancy for any equipment and control instrumentation which influence operating pressures so that failure of a single equipment piece or control instrument does not cause a relief valve discharge from overpressurization.

Response

The approach recommended by the commenter is inappropriate in this case. The Clean Air Act, as amended, requires EPA to establish emission standards

VAB.0001119882

(i.e., performance standards) unless they are not feasible to prescribe or enforce. Thus, because EPA can establish an emission/performance standard, such as a standard prohibiting all relief valve discharges except emergencies, EPA is required to do so. Information on the effectiveness of various equipment and operational procedures for controlling relief valve discharges was not available at the time the original standard was written. It was expected that different combinations of control measures would be equally effective in preventing relief valve discharges. One finding of the review study was that individual "control techniques" (including equipment and operational measures) associated with prevention of relief valve discharges can not be directly related to emissions reduction. Furthermore, the attitude of plant owners and operators appears to be an important factor in controlling relief valve discharge occurrences. During visits to five PVC plants with good performance records, EPA learned that these plants had effectively implemented different combinations of equipment and work practices for preventing relief valve discharges (Docket Item II-B-31). Based on these findings, EPA continues to believe that it is more effective to allow plants to develop their own combination of preventive measures that will enable them to eliminate preventable discharges limits rather than to prescribe control measures.

The EPA agrees that redundant instrumentation and certain other equipment are an important factor in prevention of relief valve discharges at some plants. However, the level of redundancy varies according to plant and the type of discharge to be controlled and cannot be uniformly specified for all plants. Generally, at least one level of redundancy for key instrumentation and equipment affecting relief valve discharge incidence is considered by EPA to be necessary for proper operation and maintenance.

Comment — Gasholder Containment System

Two commenters (IV-D-11, IV-D-12) urged EPA to strengthen the standard by specifying the use of all available equipment and practices to minimize emissions, particularly gasholders. One of the commenters (IV-D-12) stated that gasholder containment systems are feasible and should not be rejected on

VAB.0001119883

the basis of cost or the small quantity of emissions that would be controlled through a gasholder system. The commenter asserted that cost is an inappropriate factor for consideration under Section 112 and that gasholder containment systems have been installed pursuant to enforcement actions. Further, the commenter stated that VC emissions control through the use of gasholder containment systems should be pursued, even if they are only effective in controlling emergency releases of VC.

The second commenter (IV-D-11) stated that EPA should examine the use of gasholder containment systems on PVC plants to contain releases of VC. This commenter pointed out that such a system is being required for a PVC plant in Delaware pursuant to a consent decree.

Response

Gasholders are one of many control measures that are available to plants to control relief valve discharge emissions. In fact, some plants currently have gasholders available as part of the VC recovery system or as a surge vessel feeding the incinerator or other primary control device (Docket Item II-A-19). At least one PVC plant vents relief valves on certain equipment (i.e., equipment other than reactors and storage spheres) to a gasholder (Docket Item II-B-31). The EPA is unaware of any plant that currently vents relief valves on PVC reactors directly to a gasholder.

Although gasholders may be appropriate technology for certain plants to reduce relief valve discharge emissions, they are not essential control technology for all plants, as evidenced by the fact that some plants with the lowest relief valve discharge rates do not have gasholders. Consequently, EPA believes it is inappropriate to require gasholders for all plants. However, EPA does not discourage the use of gasholder containment systems as a control technology for relief valve discharges when appropriate.

2.2.4 Applicability of Numerical Limits

Comment

Multiple Discharges During Single Overpressure Event

Three commenters (IV-D-1, IV-D-3, IV-D-6) requested that multiple relief valve discharges that occur from the same piece of equipment because of a

VAB.0001119884

single overpressure event be considered a single discharge regardless of whether they occur simultaneously.

Response

This comment refers to the method for counting discharges under the proposed revised requirements for relief valve discharges which EPA has decided not to promulgate (see Section 2.2.1). The number of relief valves that discharge during an overpressure event is not critical to compliance determinations under the current standard.

Comment Discharges Vented to a Control Device

Two commenters (IV-D-1, IV-D-14) requested additional clarification on the applicability of the relief valve discharge limits to discharges that are vented to a control device. One commenter (IV-D-1) suggested the limits specify that only discharges direct to the atmosphere are to be considered when determining compliance with the limits. The second commenter (IV-D-14) questioned whether a relief valve discharge vented to a control device not meeting the 10 ppm limit would be counted as a relief valve discharge for compliance purposes. He expressed concern that both a 10 ppm violation and a relief valve discharge violation could be cited if the standard does not clearly indicate that relief valve discharges conveyed to a control device are no longer considered to be relief valve discharges regardless of whether 10 ppm is achieved.

Response

As with the previous comment, this comment refers to the method of determining which relief valve discharges are subject to the numerical discharge limits. Although EPA has decided not to revise the relief valve discharge standard (see Section 2.2.1), the discussion on which discharges are subject to the standard remains valid. Specifying that only relief valve discharges direct to the atmosphere are to be considered relief valve discharges for compliance purposes is inconsistent with the EPA's intent. Relief valves that discharge to headers that ultimately discharge to the

VAB.0001119885

atmosphere without control are clearly intended by EPA to be relief valve discharges subject to the standard.

As explained in the preamble to the proposed revisions (50 FR 1189), relief valve discharges that are vented to a control device meeting 10 ppm are exempt from the relief valve discharge standard. Analyses indicate that a 99.9 percent reduction in VC content is achievable when a relief valve discharge is vented through a control device designed to reduce emissions to 10 ppm. Consequently, although it is not feasible to vent all relief valve discharges to a control device, benefits in emission reductions are attainable in many cases. Therefore, the EPA supports and encourages the venting of relief valve discharges to a control device as long as such venting does not interfere with the ability of the control device to reduce exhaust gas emissions to 10 ppm. In the event that a relief valve discharge is vented to a control device while it is not meeting 10 ppm, both the standards for exhaust gas and relief valve discharges are applicable.

2.2.5 Compliance Method

Comment — Batch Production Rate at Bulk Plants

Two commenters (IV-D-1, IV-D-2) requested that the relief valve discharge compliance method for bulk PVC plants be changed to allow separate counting of prepolymerization and postpolymerization batches.

Response

This comment is not relevant because it refers to counting of batches for demonstrating compliance with proposed limits on the number of discharges per 100 batches. As discussed in Section 2.2.1, EPA has decided not to revise the relief valve discharge standard.

Comment — Effect of Batch Production Rates

One commenter (IV-D-1) stated that the method for determining compliance with the relief valve discharge limits for PVC plants unduly penalizes plants whose batch production rates are slightly less than the exact number of batches needed to qualify for the next integer of permitted discharges. The

VAB.0001119886

commenter alleged that the method is unfair because business conditions alone determine how many batches a plant makes. A second commenter (IV-D-15) also pointed out the penalty to plants operating at low capacity (less than 2,858 batches per year) such that a single discharge would violate the limit.

Response

As with the previous comment, this comment is not relevant because EPA is no longer planning to measure compliance with the relief valve discharge standard at PVC plants based on a number of allowable discharges per batch production rate.

Comment Rounding of Calculated Discharge Frequency

One commenter (IV-D-2) objected to the "preciseness" of the proposed relief valve discharge limits and requested clarification on how rounding would be used to compare calculated discharge frequencies to the limits.

Response

As with previous comments, this comment is no longer relevant.

Comment Low Batch Rate Provision

Three commenters (IV-D-1, IV-D-9, IV-D-14) recommended alternative language for the proposed provision in 40 CFR 61.65(a)(1)(iii) pertaining to allowable discharges at low batch production PVC plants.

Response

As with previous comments, this comment is no longer relevant.

Comment 2-Year vs. 12-Month Compliance Period

Three commenters (IV-D-1, IV-D-2, IV-D-6), pointed out that the relief valve discharge limits are based on two years of performance data but are applied on an annual basis. Accordingly, two of the commenters (IV-D-2, IV-D-6) stated that a 2-year compliance period would be more appropriate.

VAB.0001119887

Response

As with previous comments, this comment is no longer relevant.

Comment

Fixed 12-Month Compliance Period

Two commenters (IV-D-8, IV-D-9) recommended that the compliance period for relief valve discharges be changed from a 12-month period rolling every 6 months to a fixed 12-month period to ensure that the same discharge or group of discharges are not counted towards more than one exceedence.

Response

As with previous comments, this comment is no longer relevant.

Comment

Alternative Regulation Format

The commenter (IV-D-2) suggested that the basis of prescribing the relief valve discharge limits for PVC plants be revised by adopting "a system of permitted discharges, expressed as whole integers, for increasing increments of ranges of number of batches polymerized: 2,858 to 5,716; 5,716 to 8,754; etc."

Response

As with previous comments, this comment is no longer relevant.

2.2.6 Reporting Requirements

Comment

10-Day vs. Quarterly Report

Three commenters (IV-D-12, IV-D-13, IV-D-16) objected to the change in relief valve discharge reporting requirements from 10-day to quarterly reporting. Two of the commenters (IV-D-12, IV-D-13) stated that a shorter reporting period would alert State, Federal and local officials as well as the public of VC releases sooner. Commenter IV-D-12 urged adoption of a 24-hour reporting requirement as consistent with requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The third commenter (IV-D-16) explained that the current practice for enforcement personnel to complete investigations of discharges within 45 days of the incident has been mutually advantageous to industry and enforcement personnel.

VAB.0001119888

Response

The EPA has reviewed enforcement data and agrees with the commenters that retention of the 10-day reporting requirement is desirable. Federal, State and local officials promptly review these reports and use the information contained therein in enforcement activity to aid in the prevention of repeat incidents. Allowing a longer reporting period would not only make it more difficult to investigate a release because of the passage of time, but would unnecessarily delay appropriate action by the enforcement agency and possibly also the source. Further, 10 days is a sufficient time for sources to gather the needed information to prepare a report.

A 24-hour reporting requirement was not selected. The EPA believes that the benefits of the 10-day reports would not be significantly increased by 24-hour reporting. Also, at least one State already requires its source to report discharges by telephone within three hours. The EPA feels that other States may also include the requirement if the need and enforcement resources exist. Owners and operators should review and consider the need to report emissions of VC as they relate to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). In particular, emissions of VC not allowed by the VC standard and greater than the CERCLA "reportable quantity" may need to be reported to the National Response Center.

2.3 REVISIONS TO LEAK DETECTION AND REPAIR REQUIREMENTS

2.3.1 Need for Subpart V in VC Standard

Comment

Request to Drop Subpart V

Several commenters urged dropping the addition of Subpart V in the VC standard.

Five commenters (IV-D-4, IV-D-3, IV-D-5, IV-D-14, IV-D-15) stated that existing leak detection and elimination programs are at least as effective as Subpart V in controlling equipment leaks. According to these commenters, applying Subpart V to the VC industry is not justified because emission reduction would be insignificant and no health benefit would result. Furthermore, Subpart V would create additional administrative burden that would necessitate an increase in resource and manpower requirements.

VAB.0001119889

Two commenters (IV-D-3, IV-D-12) stated that incorporation of Subpart V in the VC standard could potentially result in less stringent control of equipment leaks because some plants have existing leak detection and elimination programs with more stringent leak definitions than Subpart V. Commenter IV-D-12 urged EPA to prepare and make public a point-by-point analysis comparing existing leak detection and elimination programs to requirements in Subpart V.

Response

The original VC standard required implementation of a formalized program for detection of leaks from equipment in VC service and elimination of these leaks. This program was based on an area-wide monitoring system and routine use of a portable monitor to detect leaks. Detailed requirements for these leak detection and repair programs were not specified; rather, plants were required to develop their own plans subject to approval. During the review of the original standard, EPA found that existing leak detection and repair programs implemented by plants vary significantly from plant to plant (Docket Item II-A-19). While some of the differences in these programs resulted from site-specific differences in plants (e.g., layout of plant, background concentration, etc.), others resulted from ineffective approaches to routine leak detection and repair. For example, differences in plant programs include variations in leak definitions and monitoring practices. Leak definitions used in conjunction with portable monitors are very stringent (10 to 25 ppm) at some plants, while some plants have no specific leak level defined for portable monitors. Some leak definition concentration levels were comparable to the 10,000 ppm used in the routine program of Subpart V but were based on measuring the leak at a distance from the equipment rather than at the surface (leak interface) of the equipment as required by Subpart V. Similarly, some plants routinely monitor equipment components for leaks with a portable monitor on a formal schedule, while others monitor for leaks only when indicated by an area monitor detection. These differences can significantly affect the effectiveness of leak detection and repair programs. Based on these findings, EPA concluded that more specific leak detection and repair

VAB.0001119890

requirements should be established for certain equipment in VC service. The EPA did not propose to change the level of control (emission or risk reductions or cost implications) with this part of the VC standard as some commenters indicated, but instead proposed to provide a better way to evaluate compliance with the original decision to require effective leak detection and elimination.

As noted in the preamble to the proposed revisions (50 FR 1190), studies conducted by EPA and industry in conjunction with development of equipment leak standards for other industries have provided information on what constitutes an effective program for detecting and repairing equipment leaks since the VC standard was first developed in 1975 and 1976. Based on these studies, EPA selected equipment and work practice requirements that represent an effective leak detection and repair program and included them in 40 CFR Part 61 Subpart V. This subpart, promulgated on June 6, 1984, established leak detection and repair requirements for equipment in volatile hazardous air pollutant (VHAP) service. These requirements were specifically developed to regulate emissions of hazardous pollutants such as benzene and are equally applicable to VC. Accordingly, EPA proposed to designate VC as a VHAP in the context of Subpart V. Addition of Subpart V to the VC standard would ensure effective control of equipment leaks on a consistent basis throughout the VC and PVC industries. (It should be noted that new, modified, or reconstructed VC production and recovery plants are covered by the new source performance standard for the organic chemical industry. This standard for VOC emission is essentially identical to Subpart V.) The basis for adding Subpart V to the VC standard was explained in detail in the preamble to the proposed revisions (50 FR 1190-92).

Prior to the January 9, 1985, proposal, EPA requested and then responded to industry comments by adjusting how Subpart V is to be applied under the VC standard. At that time, industry comments emphasized the effectiveness of existing leak detection and repair programs resulting from compliance with requirements of the VC standard and OSHA regulations. The industry commenters suggested that Subpart V be required only for those plants with inferior programs. While Subpart V already provides alternative standards for reducing the burden on plants with effective leak detection and repair programs (see

VAB.0001119891

40 CFR 61.243), industry representatives pointed out that even the alternative Subpart V requirements would require plants to inventory equipment components in VC service, an unreasonable administrative burden according to the industry commenters. Even though EPA finds it difficult to understand how an effective program can exist without an equipment inventory, EPA responded to the industry concerns in the January 9, 1985, proposal by allowing plant owners and operators to determine compliance with the alternative standards in Subpart V by testing a prescribed sample of all valves, thereby reducing significantly the administrative burden associated with inventorying VC service equipment.

The EPA disagrees with the comment that Subpart V could result in less stringent control of equipment leaks than existing programs. In general, Subpart V represents a better way to determine compliance with requirements for leak detection and repair. In contrast to the provisions for leak detection and repair programs in the original VC standard, Subpart V contains a detailed list of requirements that, once implemented, will result in effective control of equipment leaks at reasonable cost. Any plants with effective existing programs based on more stringent leak definitions or monitoring practices than Subpart V will continue to effectively control equipment leaks either by implementing Subpart V or continuing with their existing program. Any increase in equipment leak emissions caused by plants switching to Subpart V would be more than offset by additional reductions achieved at plants with programs less effective than Subpart V. In this way, the overall level of control of equipment leak emissions would not be changed by incorporation of Subpart V in the VC standard.

2.3.2 Applicability of Subpart V Under VC Standard

Comment — Option to Implement Subpart V

Two commenters (IV-D-2, IV-D-14) recommended that the regulation clearly specify that plants may elect to implement Subpart V or continue their existing leak detection and elimination program supplemented to demonstrate that less than 2 percent of valves in VC service are leaking. Similarly, another commenter (IV-D-6) requested that the regulation clearly indicate

VAB.0001119892

that plants demonstrating that less than 2 percent of valves are leaking are not subject to Subpart V. A third commenter (IV-D-14) also recommended that plants be given the option of continuing existing programs or complying with Subpart V, explaining that such an option is appropriate in the absence of justification that Subpart V is more effective than existing programs.

Response

The EPA will use Subpart V, as needed, to supplement determinations of compliance with the requirements of §61.65(b). Because Subpart V does not address some sources covered under §61.65(b), Subpart F will serve as the main basis for determinations of compliance for these sources. For example, Subpart V does not address loading or unloading lines (except to the extent such lines are open-ended lines or valves) and, therefore, the requirements of §61.65(b)(1) will be used to evaluate compliance. Other sources covered by §61.65(b) (e.g., pumps) are also covered by Subpart V. For these sources, Subpart V will be used to supplement Subpart F when EPA makes compliance determinations. The EPA decided to propose and promulgate this approach because, while the work practices and equipment requirements of Subpart F specify the goal of the original standard, it did not always clearly specify how to achieve acceptable compliance. For example, the requirements for pumps [§61.65(a)(3)(i)] require double mechanical seals or equivalent. Subpart V goes on to define compliance for all the known equivalent systems for pumps: other dual seal systems and leakless pumps. The only aspect of Subpart F where compliance determinations would be substantially changed concerns the routine leak detection and repair requirements of §61.65(a)(8)(ii). The basis for this decision is discussed in the previous response and is needed to spell out clearly how compliance is determined. In making this change EPA considered options, as requested by industry commenters, before the standard was proposed and selected an approach as discussed below.

The option recommended by the commenter of continuing the existing leak detection and elimination program or complying with the Subpart V monitoring and repair requirements for valves is already offered in the revised standard, but only for plants who initially, annually, and at the request of EPA

VAB.0001119893

demonstrate that less than 2 percent of the prescribed sample of valves are leaking. Plants failing the performance test at any time may no longer elect the option of only continuing their existing program and performing an annual test. Removal of this option is not unreasonable because failure of the performance test is indicative that improvement in leak detection and repair techniques is needed and warranted. Such improvement is provided by the requirements of Subpart V. However, plants required to comply with all requirements of Subpart V may be able to perform annual leak checks instead of more frequent monitoring. This is possible because Subpart V contains alternative provisions exempting valves from routine monitoring requirements if an annual test demonstrates that less than 2 percent of valves are leaking.

Comment Additional Equipment Requirements Under Subpart V

Three commenters (IV-D-1, IV-D-8, IV-D-9) noted that the EPA's conclusion that all equipment except valves and flanges are already controlled to a level consistent with Subpart V is not adequately reflected in the proposed regulation. The commenters recommended that the inconsistencies in requirements of Subpart V and the VC standard be clarified by listing which requirements apply to specific equipment.

In particular, several commenters (IV-D-1, IV-D-2, IV-D-3, IV-D-4) pointed out that Subpart V contains requirements for sensors on pump seals not found in the VC standard and that under the revised standard, plants would be required to retrofit pumps with seal sensor devices at significant cost. One of the commenters (IV-D-3) also stated that compliance with the open-ended valve requirements of Subpart V would require retrofit expenditure. Another commenter (IV-D-2) expressed concern about the cost of performing annual leak checks on valves, many of which are reportedly difficult to access. Three commenters (IV-D-1, IV-D-2, IV-D-4) stated that the area monitors operated under the VC standard provide adequate leak detection for seal failures.

VAB.0001119894

Response

As stated in the preamble to the proposed revisions (50 FR 1191), addition of Subpart V to the VC standard substantively affects only valves and flanges in VC service. More specifically, even though Subpart V will be used to supplement compliance determinations with only the equipment leak requirements in Subpart F, plants complying with the equipment and work practice requirements of Subpart F for equipment components other than valves and flanges should automatically comply with the Subpart V provisions. Requirements in 40 CFR 61.65(b) of Subpart F for valves, pumps, compressors, and leakage from relief valves are consistent with requirements in Subpart V. Despite the concerns raised by the commenters, this conclusion is still judged by EPA to be essentially correct with the following exception.

For those plants that have not already adopted the usual industry practice of capping open-ended lines, Subpart V will require these lines to be capped. Capping of open-ended lines is required both in Subpart V for controlling equipment leaks of volatile hazardous air pollutants and in the SOCMI equipment leak standards (40 CFR Part 60 Subpart VV). In both cases, capping open-ended lines was judged to be a cost-effective method for eliminating leaks from open-ended lines. The cost effectiveness of capping open-ended lines is about $400/Mg VOC. The EPA believes this finding also applies to most open-ended lines in VC service. However, EPA investigated the retrofit expenditure for capping open-ended lines at the plants operated by **Commenter IV-D-3** and found that certain open-ended lines resulting when multi-purpose lines used to charge materials to polymerization reactors in PVC plants are in VC service (i.e., charging VC) may be unreasonable to cap, because of the high cost associated with additional piping and other retrofit requirements (Docket Items IV-C-9, IV-B-10). **For this reason, EPA has decided to exempt certain open-ended lines in batch operations from the requirements of Subpart V.**

The basis for the comment that compliance with Subpart V would require plants to retrofit their VC service pumps with seal sensors is unclear. The VC standard requires plants to minimize emissions from seals on pumps in VC service by installing sealless pumps, pumps with double mechanical seals, or

VAB.0001119895

equivalent. Plants choosing to meet the requirement by installing pumps with double mechanical seals are required to maintain the pressure between the two seals so that any leak that occurs is into the pump or by ducting any VC between the two seals to the primary control device. In order to ascertain proper operation of these seal systems, some method of monitoring the barrier fluid is essential. To the EPA's knowledge, area-wide monitoring is only effective for detecting large leaks and cannot be relied upon to indicate the need for repair of seal systems prior to catastrophic failure. Information from several PVC plants about their seal systems indicates a range of monitoring methods from a sight glass marking the level of fluid in the barrier fluid pot to a pressure gauge measuring the nitrogen pad used to maintain the barrier fluid at a positive pressure to the pumped material. The EPA considers these types of methods of monitoring the seal system to be adequate for meeting the Subpart V requirements for seal sensors on pumps with double mechanical seals.

Comment — Approval of Existing Plans

Three commenters (IV-D-1, IV-D-3, IV-D-4) questioned the requirements for obtaining approval for leak detection and elimination programs. One commenter (IV-D-4) recommended that resubmission of plans be required only if plants modify their plans. The second commenter (IV-D-1) recommended that already approved plans be exempt from resubmittal requirements. The commenter (IV-D-1) suggested that the standard specify that plans submitted for approval that are not acted upon within 60 days will be considered approved.

The third commenter (IV-D-3) questioned whether effective existing leak detection and elimination programs would be deemed equivalent to Subpart V if they did not contain the extensive administrative requirements of Subpart V. The commenter added that past experience in submitting equivalency requests has indicated that significant man-hours are required to prepare an acceptable equivalency request.

VAB.0001119896

Response

The commenters misinterpreted the meaning of the provision in proposed 40 CFR 61.65(b)(8) which introduces criteria for approval of leak detection and elimination plans. The EPA does not intend for plants to resubmit plans already approved under the original standard. Only new or modified plans are required to be submitted for approval under the revised standard. EPA will use Subpart V, as an aid, when evaluating compliance with requirements for pumps, compressors and other equipment components. However, compliance with the VC standard requirements (in 40 CFR 61.65(b)(8)(3)) for these equipment components represents compliance with Subpart V. "Equivalency" of existing leak detection and elimination programs with the Subpart V requirements may be demonstrated through a performance test of valves as prescribed in proposed 40 CFR 61.61(b)(8)(ii). This does not apply to equipment requirements for pumps and other equipment or the performance standard for leaks from pressure relief devices.

Comment

Basis of Subpart V Requirements

The commenter (IV-D-3) stated that the emission reductions projected for Subpart V are based on refinery fugitive data and are not accurate for the VC industry which is a low-leak industry.

Response

Subpart V was developed based on leak studies for VOC, in general, and benzene, specifically. As noted by the commenter, these studies were performed at petroleum refineries. However, EPA investigated other leak studies performed in the synthetic organic chemical manufacturing industry (SOCMI) in developing equipment leak standards for SOCMI. (Vinyl chloride production is part of SOCMI.) The SOCMI equipment leak standard (40 CFR Part 60 Subpart VV) contains the same equipment and work practice requirements as Subpart V. The differences between petroleum refinery and SOCMI leak data were found to be unimportant in developing standards for these industries.

In addition, Subpart V contains a provision for low-leak plants such as some of the plants in the VC industry (see 40 CFR 61.243). This provision

VAB.0001119897

allows plants that have demonstrated their low-leak status to monitor for leaks on a less frequent basis and therefore significantly reduce the cost of controlling equipment leaks to the required level.

Comment Subpart V & Method 21 - Notice for Review

The commenter (IV-D-9) stated that EPA should issue a notice allowing for public review and comment on Subpart V and EPA Test Method 21 as they apply to VC.

Response

Comments on Subpart V and EPA Test Method 21 as they apply to the VC standard have been considered in developing the promulgated standard for VC. A separate notice is not needed. Responses to specific comments on Subpart V and Method 21 as they apply to VC are included in Sections 2.3.7 and 2.3.8.

2.3.3 Alternative Compliance Demonstration Option

Comment VOC Service vs. VC Service Components

Four commenters (IV-D-1, IV-D-4, IV-D-8, IV-D-9) requested that the provision allowing plants to demonstrate equivalency of leak detection and elimination programs with Subpart V through a performance test specify a sample of VC service valves to be tested instead of VOC service valves. Two of the commenters (IV-D-8, IV-D-9) stated that testing of VOC service valves is inappropriate under a standard regulating VC.

Response

The EPA agrees that specifying a performance test of valves in VC service would be more appropriate for demonstrating the effectiveness of a plant's leak detection and repair program for controlling VC leaks. Subpart V already includes an option for plants to demonstrate their program's effectiveness through an annual performance test of VC service valves (see 40 CFR 61.243). However, in response to concerns raised by industry representatives, EPA recognized if a performance test of VC service valves is

VAB.0001119898

prescribed, some plants would have to identify, tag and keep a record of all VC service valves for the first time. At the August 30, 1984, meeting of the National Air Pollution Control Techniques Advisory Committee (NAPCTAC), industry representatives voiced opposition to inventorying equipment components for purposes of leak testing because of the additional administrative burden associated with tagging equipment and maintaining records. The EPA believes this administrative burden can be reduced without affecting the level of control expected to be demonstrated during the performance test by allowing plants to test a sample of valves in VOC service which are more readily identifiable. The EPA's decision to specify a performance test of VOC service valves is based on the assumption that if 2 percent or less of the tested VOC service valves are leaking, it is reasonable to expect that 2 percent or less of the VC service subset of these valves are leaking. Based on these considerations, EPA sees no reason to revise this provision.

Comment

Leak Criteria

Two commenters (IV-D-8, IV-D-9) recommended that the provision allowing plants to demonstrate equivalency of existing leak detection and elimination programs with Subpart V through a performance test specify that instrument readings exceeding the plant's approved leak definition be used as the leak criteria rather than instrument readings greater than 10,000 ppm as specified in Subpart V. The commenter stated that use of the plant-specific leak definition would be more consistent with the provision requiring plants to develop leak definitions as part of their leak detection and elimination programs.

Response

The commenter apparently believes that if a performance test is to demonstrate the effectiveness of existing leak detection and repair programs practiced by plants relative to the Subpart V requirements, it should be based on the leak definition implemented as part of the existing program. In contrast, EPA believes that demonstration of effectiveness of existing programs [relative to Subpart V] can be achieved only with a performance test

VAB.0001119899

on valves using the leak criterion in Subpart V (i.e., instrument readings of greater than 10,000 ppm at the interface based on calibration with methane). In fact, using the Subpart V leak criterion during the performance test is more appropriate than using the plant-specific definitions because of differences in plant-specific leak definitions which contribute to ineffective programs. Use of a standard leak criterion ensures that the performance test is applied with equal stringency at all plants throughout the industry.

Plants may request that existing leak definitions established as part of their plant-specific programs be allowed for use during performance tests. Use of the plant-specific leak definitions will be allowed if they are demonstrated to be more stringent than the leak criterion found in Subpart V.

Comment — Number of Valves Required to be Tested

Three commenters (IV-D-4, IV-D-8, IV-D-9) requested clarification regarding the number of valves required to be tested as part of the performance test to demonstrate equivalency of leak detection and elimination programs with Subpart V.

Response

The provision in proposed 40 CFR 61.65(b)(8)(ii)(B) prescribing the performance test states that "a minimum of 200 or 90 percent of the total valves in VOC service" within each process unit are to be tested. Specifically, process units with more than 200 valves in VOC service are required to test at least 200 valves while process units with less than 200 valves in VOC service must test 90 percent or more of valves. Accordingly, the provision has been clarified:

§61.65(b)(8)(ii)(B)

"For each performance test, a minimum of 200 or 90 percent, <u>whichever is less</u>, of the total valves . . . . "

Comment — 30 Day Retest & Annual Option

Four commenters (IV-D-1, IV-D-3, IV-D-4, IV-D-5) suggested that plants failing to demonstrate equivalency of existing leak detection and elimination

VAB.0001119900

programs with Subpart V through a performance test be allowed to retest within 30 days rather than become automatically subject to all Subpart V requirements. Commenter IV-D-3 added that a retest would provide incentive for plants to evaluate and correct problems prior to the retest to avoid becoming subject to Subpart V. Commenter IV-D-4 explained that a retest is appropriate considering the time required to implement Subpart V. Two commenters (IV-D-1, IV-D-3) also recommended that plants be allowed the option of reverting back to the existing leak detection and elimination programs after a year under Subpart V.

One commenter (IV-D-3) recommended dropping inclusion of Subpart V requirements in the VC standard, but maintaining the proposed provision requiring plants to demonstrate the effectiveness of their existing leak detection and elimination program through an annual performance test.

Response

The changes recommended by the commenters are not consistent with the purpose for adding Subpart V to the VC standard. The VC standard, as revised, requires plants to implement an effective leak detection and elimination program for valves either by complying with Subpart V or by following their existing program if it results in fewer than 2 percent leaking valves. As discussed above, other requirements of Subpart V will be used to supplement compliance determinations with §61.65(b)(8). In the EPA's judgement, a performance test measuring greater than 2 percent leaking valves is indicative of an inadequate existing program. Consistent with the purpose of adding Subpart V, it is appropriate to require these programs to be upgraded to comply with Subpart V requirements because they represent an effective program for detection and repair of leaks from valves.

The performance test on valves is a convenient and efficient way for plants to demonstrate the effectiveness of their existing leak detection and elimination programs without the additional burden of inventorying equipment components and maintaining records. However, once failure of a performance test triggers Subpart V and the associated inventory and recordkeeping requirements, the benefit of the convenient and efficient performance test

VAB.0001119901

option no longer exists. However, under Subpart V, monitoring of valves may also be limited to an annual performance test as long as 2 percent or fewer valves are found to leak.

Comment — Impact of Performance Test Failure

Two commenters (IV-D-3, IV-D-4) recommended that failure by plants to demonstrate through a performance test that fewer than 2 percent of valves leak should trigger Subpart V requirements for valves only and not other equipment components.

Response

The commenters' concern is not relevant because plants complying with the equipment leak provisions of the VC standard already meet the Subpart V requirements for equipment components other than valves and flanges, with the possible exception of open-ended lines. (As discussed in Section 2.3.2, plants not currently complying with the open-ended line requirements in Subpart V will have to cap these lines. Capping of open ended lines is considered by EPA to be a cost-effective method for controlling leaks from open-ended lines.) In addition, the requirements of Subpart V will only be used to supplement determinations of compliance with §61.65(b). If compliance with Subpart V is not demonstrated by a plant, the plant does not comply with Subpart F.

2.3.4 Leak Definition

Comment — Clarification of Leak Definition

Three commenters (IV-D-4, IV-D-8, IV-D-9) requested clarification regarding the requirement that plants establish a leak definition as part of their leak detection and elimination program. Two of the commenters (IV-D-8, IV-D-9) recommended that the provision requiring plants to establish a leak definition as part of their leak detection and elimination program indicate whether the leak definition applies to both area monitors and to portable monitors, or just to area monitors. The third commenter (IV-D-4) recommended modifying the provision requiring establishment of a leak definition to

VAB.0001119902

require plants instead to define a leak level in conjunction with area monitors such that area monitor readings in excess of the defined level are not considered leaks in themselves but rather an indication to search for a "leak" as now defined by the criteria of Subpart V.

Response

Under the original VC standard, plants are required to define a leak as part of their program for detecting and eliminating equipment leaks. Although different approaches were taken by plants, the intent was for plants to establish a definition of leak as measured by an area monitor compared to background concentrations. Then, when portable monitors were used to pin-point leak sources, a different leak definition was to be applied. Because of differences among plants in the number and location of area monitors and background concentrations, leak definitions pertaining to area monitor detections necessarily vary and should remain a plant-specific measurement. However, both the industry and EPA may want to review and alter the area monitor leak definitions to improve their usefulness.

Unlike the leak definition for area monitors, the definition used to measure leaks from specific equipment components can and should be standardized. Addition of Subpart V to the VC standard provides this standardization. As a result, plants no longer are required to develop their own leak definition for detecting leaks with a portable monitor.

In response to the comment that leaks defined in conjunction with area monitor detection of leaks should be considered an action level indicating the need to search for a leak, it should be pointed out that a reading in excess of the area monitor leak definition is an indication of a leak. Even if the actual source of the leak is not found, the event is recorded as a leak for compliance purposes.

2.3.5 Relief Valve Monitoring Requirements

Comment

Rupture Disc Exemption

Three commenters (IV-D-3, IV-D-8, IV-D-9) requested that relief valves equipped with rupture discs be exempt from the proposed monitoring requirements

VAB.0001119903

for relief valves. Commenter IV-D-9 further recommended that relief valves connected to a process line, recovery system or equivalent be exempt from relief valve monitoring requirements. The commenters recommended that Subpart V be revised accordingly.

Response

Section 112 of the Clean Air Act requires EPA to set performance standards, whenever feasible. In the case of relief valve leaks, it is possible and appropriate for a performance standard to be applied. Furthermore, the EPA does not agree that only equipping relief valves with rupture discs is adequate basis for exempting relief valves from monitoring requirements for leaks. As part of good operation and maintenance practices, rupture discs should be checked at least annually and after each discharge to maintain their integrity. The best way to ensure that integrity of the rupture disc is constantly maintained is through the performance test in Subpart V.

The EPA agrees that venting a relief valve through a closed vent system to a control device warrants exemption from monitoring requirements. The Subpart V requirements referenced in the VC standard for controlling equipment leaks from relief valves already exempt relief valves connected through a closed vent system to a control device from monitoring requirements. In this situation, process lines or recovery systems may qualify as control devices for the purpose of complying with Subpart V.

2.3.6 Calibration Requirements

Comment — Calibration Gas for Monitors

Two commenters (IV-D-8, IV-D-9) requested clarification on calibration gas requirements for monitors under the revised standard. Commenter IV-D-9 recommended that the standard specify continued use of VC as calibration gas instead of methane or hexane as prescribed in Subpart V.

VAB.0001119904

Response

There are two different definitions of a leak, and thus two different calibration gas requirements. Leaks are detected in two different ways: by an area monitor specific to VC measuring the general condition or possible presence of VC leaks in an area; and by routine leak detection monitoring (of particular valve or pump seals, etc.) to determine if specific pieces of equipment are leaking.

The area monitor must be specific to and calibrated with VC because other organics may be present in the air to such an extent that the VC concentration would be masked. Whether the routine leak detection monitor is calibrated with VC or some other organic is not as critical to EPA as long as that monitor is less responsive to VC than the alternative calibration gas. If such a monitor is calibrated with VC, then the definition of a leak is in effect lowered, and EPA would consider that acceptable in an alternative method request.

Comment

Monitor Span Checks

Two commenters (IV-D-8, IV-D-9) suggested that because the same instruments are often used for both area monitoring and exhaust gas monitoring, a single span check using a 10 ppm VC standard should be allowed instead of two separate span checks.

Response

Area monitoring and exhaust gas monitoring serve two different regulatory purposes within the standard. While a 10 ppm span is appropriate for emission monitoring for the exhaust gas standard, it may or may not be appropriate for area monitoring, depending on the background concentration of VC in the areas of the plant to be monitored. Therefore, while the same instrument may be used to serve both monitoring requirements, there is no regulatory justification for requiring that the required span gases be the same concentration.

VAB.0001119905

2.3.7 Subpart V

Comment — Exemption from Administrative Requirements

Two commenters (IV-D-8, IV-D-9) requested that a provision be added to Subpart V allowing exemption from certain inventory and recordkeeping requirements for valves if a performance test indicates that 2 percent or fewer valves in VHAP service are leaking. Commenter IV-D-8 also recommended that a similar provision be added to Subpart VV.

Response

Subpart V of Part 61 and Subpart VV of Part 60 already contain a provision which allows plants that establish a low valve leak rate (i.e., less than 2 percent) to skip monthly monitoring and to perform monitoring on an annual basis. This differs from the provision in the VC standard that exempts plants that initially, annually, and at the request of EPA, demonstrate a 2 percent or better leak rate from certain inventory and recordkeeping requirements. Exempting VC plants that consistently demonstrate a low leak rate from these inventory and recordkeeping requirements is reasonable because these plants have over eight years of operating experience under formal leak detection and repair plans required by the original VC standard. Special consideration should be given to those plants for their successful efforts in response to the original VC standard requirements. Because other plants subject to 40 CFR Part 61 Subpart V and 40 CFR Part 60 Subpart VV do not have this level of experience nor have they been subject to a prior NSPS or NESHAP for equipment leaks, it is reasonable to require these plants to comply with all the requirements under Subpart V.

Comment — Equipment Identification

The commenter (IV-D-8) recommended that Subpart V be revised to also allow identification of equipment by labeling on engineering drawings rather than only tagging in the field.

VAB.0001119906

Response

Methods other than tagging in the field are currently allowed for identification of equipment components for testing purposes. However, more detail than is typically available on engineering drawings is often required. For example, photographs of equipment components or other identification aids may be necessary to ensure that inspectors and plant personnel are able to find the location of all equipment components subject to Subpart V requirements.

Comment — Flange Identification

The commenter (IV-D-8) stated that Subpart V should clearly specify that only flanges which have been found to be leaking are required to be identified. He noted the difficulty and expense in identifying every flange because many are covered with insulation.

Response

Flanges need to be identified to ensure effectiveness of the leak detection and repair requirements of Subpart V. However, EPA recognizes that identification of covered flanges and other connectors according to the inventory requirements in Subpart V could be too costly. Thus, in response to this comment, EPA has decided to add a provision to Subpart V allowing plants to forego identification of covered flanges. In addition, Subpart V is being revised to exempt all other connectors from identification and tagging requirements. However, these connectors are still subject to leak detection and repair requirements.

Comment — Valve Repair

The commenter (IV-D-8) stated that valves which have undergone repair during a shutdown and which are found to still be leaking after startup should be considered a new leak and not an extension of the first leak, providing proper repair techniques were applied. The commenter explained that the success of the repair often can be tested only under operating conditions.

VAB.0001119907

Response

The commenter's recommended approach is already allowed. In these cases, a review of the repair efforts is made by EPA. If they are judged to be proper, then the subsequent leak would be a new leak.

Comment — Process Accumulators

The commenter (IV-D-3) requested that the Subpart V provision regulating process accumulators be modified to specify that vents and not all fugitive sources on process accumulators in VHAP service are required to be controlled.

Response

The process accumulator vent standard in Subpart V is not applicable to PVC and EDC/VC plants because these vents are already regulated under the VC standard by the more restrictive requirements of the exhaust gas limits. However, valves and other equipment components associated with process accumulators in VHAP service are intended to be controlled like other VHAP service equipment components under Subpart V, and consequently, under the VC standard.

Comment — Connector Definition

Two commenters (IV-D-8, IV-D-9) stated that the definition of connector in Subpart V as it applies to VC should clearly exempt welded joints which are permanent.

Response

Subpart V already contains the recommended exemption.

2.3.8 Method 21

Comment — Sample Flowrate

Two commenters (IV-D-8, IV-D-9) pointed out that the nominal sample flowrate requirement of one-half to 3 liters per minute in EPA Test Method 21 should be deleted because a response time equal to or less than 30 seconds is specified in a separate provision. The commenters explained that certain reliable instruments are precluded by the flowrate requirements.

VAB.0001119908

Response

Method 21 includes a flowrate specification specifically to exclude from the method those types of monitors that have a large or unconfined sample inlet area, because EPA found that those instruments were not sufficiently responsive to leaks of a magnitude that EPA expects to be identified and corrected.

Comment Probe Placement

Two commenters (IV-D-8, IV-D-9) requested that EPA Test Method 21 be revised to specify that equipment components are to be monitored by placing the probe inlet within 1 cm of the component interface rather than directly on the surface of the interface.

Response

Method 21 for measuring VOC leaks from fugitive emission sources specifies that the portable monitor is to be placed on the surface of the interface to be tested. In the case of rotating equipment such as pumps, a distance of 1 cm between the probe inlet and equipment interface is specified. The leak definition specified in conjunction with Method 21 is based on data collected by placing the sample probe directly on the surface of the interface (except for rotating shafts on pumps and compressors). In the EPA's judgment, changing the sampling distance to 1 cm for all equipment components is inappropriate.

2.4 DEFINITIONS

2.4.1 In VC Service

Comment Reason for Revising "In VC Service" Definition

Three commenters (IV-D-1, IV-D-4, IV-D-14) recommended modification to the revised definition of "in VC service" and to the related provision in proposed 40 CFR 61.67(h) which describes how to determine whether equipment is in VC service. One of the commenters (IV-D-14) stated that the rationale for changing the definition of "in VC service" and adding requirements for determining whether equipment is in VC service has not been adequately

VAB.0001119909

explained and that the existing definition should be retained because it is clear and workable. The commenter (IV-D-14) also pointed out that certain pieces of equipment alternate in and out of VC service, depending on the operation being conducted.

Response

During the review of enforcement and compliance experience under the VC standard, EPA found that the classification of "in VC service" is a point of contention between regional compliance and industry personnel (Docket Item II-A-19). The EPA concluded that the definition of "in VC service" needed clarification to ensure that all equipment capable of emitting VC is identified and that the burden of identification falls on plant personnel and not Regional compliance personnel. To achieve the desired clarification, EPA adopted the approach for identifying equipment in VHAP service developed for the Subpart V regulation for equipment leaks. In Subpart V, a definition for "in VHAP service" is given along with a method for determining whether equipment is in VHAP service. The VHAP provisions effectively place the burden on plant personnel to identify all equipment capable of emitting VHAP. The EPA believes that adoption of the "in VHAP service" provisions of Subpart V in the VC standard is reasonable and appropriate and that changes to these provisions in context of the VC standard are not warranted.

The concern raised by the commenter regarding equipment that alternates in and out of VC service is apparently directed toward polymerization reactors and other vessels and equipment that normally contain VC but are occasionally purged prior to opening for routine or emergency maintenance. The VC standard contains specific requirements for minimizing emissions during reactor and equipment opening. Discharges from equipment not in VC service do not contain VC and therefore are not intended to be regulated by the standard. The provision regulating relief valve discharges has been clarified to apply to discharges containing VC to the atmosphere from relief valves on equipment in VC service. The provision has also been clarified to more adequately address equipment used in batch processes by referring to contained volumes in addition to process fluid streams.

VAB.0001119910

2.4.2 EDC and VC Purification

Comment — Clarification of Covered Equipment

Five commenters (IV-D-1, IV-D-3, IV-D-4, IV-D-5, IV-D-14) requested clarification of equipment covered by the revised definition of EDC purification, particularly storage tanks. Commenter IV-D-14 requested confirmation that equipment listed in a previous draft of the definition but deleted in the proposed definition are not intended to be covered. These equipment included storage tanks for crude EDC; light ends separation, condensation and storage; heavy ends separation, condensation and storage; inprocess EDC storage; and dryers. Commenter IV-D-5 questioned the claim in the preamble that all equipment following EDC formation was intended to be covered by the standard, noting that this intent is not expressed in the preamble to the original standard. Two of the commenters (IV-D-1, IV-D-14) requested that EPA provide justification for any additional equipment included in the revised definition. Commenter IV-D-4 also requested clarification of whether storage vessels are included under the revised definition of "VC purification."

Three commenters (IV-D-1, IV-D-5, IV-D-14) stated that regulation of storage tanks is not justified because of high cost and low emission reduction. Commenters IV-D-1 and IV-D-5 referred to information submitted previously to EPA providing cost and emission reduction estimates for regulating storage tanks (Docket Item II-E-73). Commenter IV-D-5 stated that EDC storage tanks are already well controlled, have low VC emissions and thus have low health risks in comparison with other sources covered by the standard. He pointed out that the same basis was used to conclude that regulation of other VC sources not previously covered by the standard is not warranted.

One additional commenter (IV-D-7) recommended alternative language for the definitions of EDC purification and VC purification to better clarify specific equipment components subject to the standard.

Response

The original VC standard did not clearly delineate which purification process equipment were subject to regulation as EDC and VC purification equipment. However, it is clear from the background information developed

VAB.0001119911

for the original standard that purification equipment containing VC were intended to be covered by the standard. During the review of the standard, EPA learned that different interpretations of the definitions of EDC and VC purification had been applied by industry personnel with the result that some plants were controlling emissions from all equipment in the purification processes, including storage tanks while others were controlling only the major emission sources (i.e., finishing columns). Interpretation of these definitions also varied among compliance personnel. In particular, compliance personnel were concerned that some plants interpreted the definition of VC purification such that control of emissions from VC storage following VC purification was not required. As a result of these findings, EPA believed it was appropriate to clarify the definitions of EDC and VC purification in the proposed revisions to the standard, primarily to ensure elimination of overly restrictive interpretations of the definitions resulting in failure to control potentially significant sources of VC emissions such as VC storage tanks.

Comments received on the proposed definitions addressed the appropriateness of including EDC storage tanks under the revised definition of EDC purification equipment. Because these tanks represent a much smaller potential source of VC emissions than VC storage tanks and because the intent of the original standard is unclear, EPA decided to evaluate the reasonableness of regulating EDC storage tanks under the VC standard. For this evaluation, EPA estimated the costs and VC emissions reductions that would result from regulation of EDC intermediate and final storage tanks which follow the final finishing column. Based on emissions data submitted by the commenters, uncontrolled VC emissions from intermediate and final EDC storage tanks at a typical EDC/VC plant were estimated to be 0.1 to 2 Mg/yr VC. Control costs were based on venting existing EDC storage tanks to an existing primary control device (i.e., incinerator) as required by the standard for purification equipment. The EPA estimated the cost to control these tanks would exceed $8,500/Mg VC (1984 dollars) and achieve an emission reduction of 0.67 to 14 Mg/yr (Docket Item IV-B-8). The EPA concluded from their evaluation that control of VC emissions from EDC storage tanks which store EDC after the

VAB.0001119912

final finishing column is not cost effective and that regulation of these tanks under the VC standard is not warranted.

Although the standard under review regulates VC emissions, EPA considered the benefit of controlling other VOC, primarily EDC, in its decision regarding whether to regulate these tanks under the VC standard. Many of these tanks are already controlled for VOC (and thus VC) according to state SIP provisions. The remainder of these tanks are located primarily in attainment areas where less stringent VOC regulations apply. Moreover, EPA is currently investigating EDC emissions for possible regulatory development as a hazardous air pollutant under Section 112. The potential emission reduction associated with control of EDC storage tanks would amount to about 600 Mg/yr and the resulting cost effectiveness would be about $330/Mg EDC (Docket Item IV-B-8). Intermediate and final EDC storage tanks which follow the final finishing column would likely be regulated under an EDC regulation. The EPA concluded that regulation of these storage tanks would be more appropriately carried out by these other regulatory mechanisms.

2.4.3 Relief Valve

Comment — Exemption of Nonventing Pressure Control Systems

Four commenters (IV-D-1, IV-D-4, IV-D-9, IV-D-14) requested additional clarification to the definition of relief valve. Two of the commenters (IV-D-1, IV-D-9) requested that relief valve be defined as any pressure relief system used to protect process components from overpressure conditions by venting directly to the atmosphere. The commenters further recommended that the definition of relief valve explicitly exempt pressure control systems such as reaction shortstop systems, refrigerated water systems and other systems which act to reduce pressure by means other than venting to the atmosphere. The third commenter (IV-D-4) stated his understanding from past discussions with EPA that the nonventing pressure control systems are not intended to be covered by the definition. The commenter (IV-D-4) also recommended that the definition be modified to exclude all devices controlling flow around an incinerator, not just control valves. The fourth commenter

VAB.0001119913

(IV-D-14) stated that although the revised relief valve discharge standard eliminates the most significant problem in the original regulation, additional clarification to the definition of relief valve in proposed 40 CFR 61.61(v) is needed to adequately reflect the expressed intent in the preamble (50 FR 1192). The commenter recommended that the definition specifically identify all types of relief devices that are subject to regulation as relief valves. This clarification would eliminate vagueness and achieve consistency with the preamble.

Response

One purpose of defining relief valve is to aid in identification of emissions of VC to the atmosphere which are subject to the relief valve discharge standard. The commenters' concern that the definition of relief valve could be interpreted to include shortstop systems and refrigerated water systems is irrelevant because it is difficult to conceive that VC could be emitted from these pressure control systems to the atmosphere. Nonetheless, EPA has revised the definition of relief valve to explicitly exclude shortstop systems and refrigerated water systems. However, the promulgated definition has not been revised to exempt all pressure control systems that protect process components from overpressure conditions by methods other than venting directly to the atmosphere. The EPA believes that exemption of all nonventing pressure control systems would be inconsistent with the intent that discharges from gasholders or other containment systems to which relief valve discharges may be vented are subject to the relief valve discharge standard.

The definition of relief valve has also been revised as recommended to exclude all devices controlling flow around an incinerator, and not just control valves. These pressure control devices act to bypass exhaust gas around the incinerator in the event of overpressure conditions or incinerator malfunction. Bypassed exhaust gas is subject to the 10 ppm exhaust gas standard and not to the limits for relief valve discharges unless the bypass is caused by a relief valve discharge.

Finally, the definition identifies several types of pressure relief devices which are to be considered "relief valves" when evaluating compliance

VAB.0001119914

with the relief valve discharge standard. As explained in the preamble to the proposed revisions (50 FR 1187), this definition is necessary to clarify that the relief valve discharge standard applies not only to emissions from pressure relief valves but to other types of pressure relief devices as well. In addition to the listed equipment, the definition also states that any other pressure relief systems that function in the same way (i.e., to protect process components from overpressure conditions) are to be considered relief valves. In this way, the intent that all pressure relief devices, and not just certain types, are subject to the relief valve discharge standard is emphasized.

Comment "Relief Valve" vs. "Relief Device"

Two commenters (IV-D-8, IV-D-9) suggested that the term "relief valve" be changed to "relief device" to be consistent with the American Society of Mechanical Engineers (ASME) designation and common usage and to avoid the confusion of referring to a rupture disc as a valve.

Response

The commenter is correct in noting that "relief valve" is a more narrow term than "relief device" and that "relief device" better connotes the variety of pressure relief equipment subject to the VC standard. However, most pressure relief discharges from equipment in PVC and EDC/VC plants occur through relief valves. As a result, the original standard was written in terms of "relief valve" for convenience even though other relief devices were intended to be included. In order to clarify that all pressure relief devices are subject to the relief valve discharge standard, a definition of relief valve has been added. The EPA believes that the added definition provides a less cumbersome solution for clarifying equipment subject to the standard than the commenter's suggestion. Nonetheless, EPA appreciates the confirmation by the industry commenter indicating understanding of the broad use of the term "relief valve".

VAB.0001119915

2.4.4 Leak

Comment "Leak" Definition

One commenter (IV-D-14) recommended that the definition of leak be revised to distinguish what a leak is from events that suggest the presence of a leak.

Response

As discussed in the preamble to the proposed revisions (50 FR 1192), one purpose of adding a definition of leak to the VC standard is to help distinguish VC emissions resulting from "leaks" from VC emissions occurring as relief valve discharges and exhaust gas. To achieve this purpose, the definition of leak lists events regulated by the VC standard and Subpart V (incorporated in the VC standard by reference) which indicate a need for repair or further action on the part of plant owners or operators. As explained in responses to other comments, EPA believes that each of the regulated events listed in the definition represent adequate criteria for requiring repair or further action and are appropriately included in the definition.

Comment Indications of Liquid Dripping

Six commenters (IV-D-1, IV-D-2, IV-D-3, IV-D-4, IV-D-8, IV-D-9) recommended modifications to the portion of the leak definition pertaining to indications of liquid dripping. Four of the commenters (IV-D-1, IV-D-3, IV-D-8, IV-D-9) stated that indications of liquid dripping should be considered leaks only if confirmed by an objective measurement. Commenter IV-D-3 suggested that an instrument reading greater than 10,000 ppm be the criterion for establishing that dripping liquids are VC leaks. Commenters IV-D-8 and IV-D-9 recommended that barrier fluid levels and/or pressures be relied upon instead as indicators of VC leaks from double mechanical seal pumps. Commenter IV-D-4 suggested that leaks defined as indications of liquid dripping should be limited to liquid dripping from pump seals in VC service. Commenter IV-D-2 recommended deletion of indications of liquid dripping from the leak definition on the basis that drips from pumps are likely not VC.

VAB.0001119916

Response

The EPA believes that indications of liquid dripping is appropriate criterion for requiring repair actions on double mechanical seal pumps in VC service and should therefore be included in the definition of leak. Visible leakage from all types of pump seals, including double mechanical seals required by the VC standard, is generally indicative of seal wear even if no VC is present in the leaking fluid. To prevent further seal wear resulting in catastrophic seal failure accompanied by VC emissions to the atmosphere, the seals should be repaired soon after leakage is initially detected. The same leak criterion for double mechanical seal pumps is prescribed in equipment leak standards for SOCMI and benzene. In the VC standard, the portion of the leak definition referring to indications of liquid dripping applies only to pumps in VC service.

Barrier fluid level and pressure sensors also provide indication of certain types of seal wear and are thus included in the Subpart V requirements for detecting leaks from double mechanical seal pumps. In the EPA's judgment, monitoring of barrier fluid as well as dripping liquids is necessary to ensure control of equipment leaks from pumps with double mechanical seals.

Comment Sensor Detection of Seal Failure

Three commenters (IV-D-1, IV-D-2, IV-D-4) disagreed with inclusion of "sensor detection of failure of a seal system" in the definition of leak. Two of the commenters (IV-D-1, IV-D-2) explained that seal system failures are not necessarily indicative of VC leaks to the atmosphere. The third commenter (IV-D-4) stated that sensor detection of seal failures should be deleted from the definition of leak in conjunction with the recommended removal of proposed seal monitor requirements for pump seals.

Response

As in the case of indications of liquid dripping, EPA believes that sensor detections of seal failure (i.e., detection of a rapid change in barrier fluid level or pressure) is appropriate criterion for requiring repair actions for double mechanical seal pumps in VC service and should be

VAB.0001119917

included in the definition of leak. Although failure of an inner seal on a double mechanical seal pump in VC service may not result in direct emission of VC to the atmosphere, continued operation would result in total seal failure accompanied by direct emission of VC to the atmosphere. The equipment leak standards for SOCMI and benzene also list sensor detection of seal failure as a criterion requiring repair actions for double mechanical seal pumps.

The EPA is not exempting double mechanical seal pumps in VC service from seal monitoring requirements in Subpart V. The basis for this decision is described in Section 2.3.2.

Comment — Leak Definitions Under Existing Standard

Five commenters (IV-D-1, IV-D-3, IV-D-4, IV-D-8, IV-D-9) requested clarification of the status of leak definitions established under existing leak detection and elimination programs. Commenter IV-D-1 recommended that leaks defined under existing approved leak detection and elimination programs be included in the definition of leak. Commenter IV-D-3 disagreed that existing leak definitions should be retained under the revised leak definition on the basis that some plant's existing leak definitions are much lower than the proposed leak definition and that imposition of Subpart V repair and recordkeeping requirements for leaks found under these existing, more stringent definitions would not be justified. Another commenter (IV-D-4) stated that the definition of leak should not include events regulated in the original VC standard of detection of ambient concentrations in excess of background concentration. Instead, these events should be considered an action level triggering a search to detect leaks on the basis of other defined leak criteria. Two additional commenters (IV-D-8, IV-D-9) recommended that the portion of the definition of leak referring to events regulated under existing plant programs should specifically reference the provision in the existing standard where these leak events are defined.

VAB.0001119918

Response

Under 40 CFR 61.65(b)(8)(vi) of the VC standard, plants are required to establish a leak definition at an acceptable level when compared to the background concentration. The provision allows for different leak definitions to be established in different parts of the plant because of variations in background concentrations. The provision also allows for adjustments in leak definitions over time as background concentrations are reduced. During the review of the standard, EPA found that leak definitions established under this provision varied widely from plant to plant (Docket Item II-A-19). Differences in leak definitions used for detecting leaks with area monitors are in part due to the variability among plants in the number and location of area monitors and differences in background concentrations. Because of these factors, it is impossible to establish a standard leak definition applicable to area monitors.

In the case of detection of leaks using portable monitors, however, it is possible and appropriate to establish a standard leak definition and method for detection of leaks. Consequently, **the definition of leak in the VC standard includes specific criteria to be used by plants in place of existing definitions for identifying leaks with portable monitors.** The prescribed leak criteria is consistent with the criteria developed for detection of leaks with a portable monitor under equipment leak standards for benzene and SOCMI and may be more or less stringent than the definitions established under the original VC standard. The EPA believes that the leak criteria developed for these other standards represent an effective program for detection of leaks with portable monitors and that more stringent definitions are not needed.

Because of the difficulty in establishing standard criteria for identifying leaks with area monitors, the definition of leak incorporates the plant's existing definition developed for use with the plant's area monitors. In reviewing the standard EPA did not identify specific problems with the definitions of leak pertaining to area-wide monitoring systems in use by the plants. The EPA concluded that the area-wide leak definitions can appropriately serve their purpose. Further, EPA does not intend for changes in

VAB.0001119919

the standard to interfere with this method of controlling leaks. However, as discussed in the preamble to the proposed revisions (50 FR 1190), plants have the option of altering the number of points that are monitored and the distribution of monitoring locations associated with existing fixed-point monitoring plans to better complement the newly prescribed portable monitoring requirements. The revised portable monitoring leak detection requirements in conjunction with the fixed-point monitoring requirements will ensure control of VC emissions from equipment leaks to the level intended by the original regulation.

Comment — Reference to Events and Emissions Regulated Elsewhere

One commenter (IV-D-14) stated that reference to events regulated under Subpart V and under the original leak detection and elimination requirements in 40 CFR 61.65(b)(8)(i) of the VC standard is not appropriate in the proposed leak definition because the referenced regulations do not contain leak definitions. The commenter (IV-D-14) further stated that the provision in the proposed leak definition that defines leaks as emissions not specifically regulated elsewhere in the standard should be omitted because it has no apparent basis and would be confusing.

Response

For purposes of the VC standard, a leak is defined as those events regulated under the VC standard and Subpart V (included in the VC standard by reference) which indicate the need for repair or further action by the plant. The definition of leak appropriately references where these events are regulated (i.e., either Subpart V or the VC standard). The provision in the definition that leaks include emissions not regulated under certain prescribed parts of the VC standard was included primarily to help ensure regulation of VC emissions from sources not addressed elsewhere in the standard. For example, although uncommon, emissions of VC occasionally occur from sources such as broken pipes or headers. In the past, it was unclear to some plant owners and operators whether these types of emissions were subject to

VAB.0001119920

regulation as exhaust gas, as a leak, as both, or as neither. The proposed definitions of leak and exhaust gas included provisions intended to clearly distinguish between the two types of emissions. However, these provisions were not intended to imply that compliance with requirements for leaks and exhaust gas would be mutually exclusive. After reviewing the proposed definitions, it is the EPA's opinion that automatic classification of emissions from unconventional sources such as broken pipes as either a leak or exhaust gas is neither practical nor appropriate. Accordingly, the provision in the definition of leak which specifies that emissions not regulated under the prescribed parts of the standard are to be considered leaks has been deleted.

Comment

Instrument Readings of 500 ppm Above Background

Five commenters (IV-D-1, IV-D-2, IV-D-3, IV-D-4, IV-D-9) suggested that the distinction between leaks defined as instrument readings greater than 10,000 ppm and leaks defined as instrument readings of 500 ppm above background be clarified by specifying that instrument readings of 500 ppm above background apply only to certain equipment. Three of the commenters (IV-D-1, IV-D-2, IV-D-9) recommended that instrument readings of 500 ppm above background be applied to relief valves when not relieving and sealless pumps. A fourth commenter (IV-D-3) recommended applying the 500 ppm above background definition to leaks from sealless valves in addition to pumps and relief valves and the fifth commenter (IV-D-4) recommended applying the 500 ppm above background definition to non-relieving relief valves only.

Response

The commenters correctly pointed out that leaks defined as instrument readings of 500 ppm above background are intended to apply to equipment designated to comply with no detectable emissions. According to the revised VC standard, relief valves are to be operated with no detectable emissions. In addition, valves, sealless pumps and compressors can be designated for no detectable emissions under Subpart V under certain conditions. To clarify

VAB.0001119921

the leak definition, it has been revised to clearly distinguish between leaks defined as instrument readings of 10,000 ppm and leaks defined as instrument readings of 500 ppm above background as follows:

§61.61(w) "Leak" means any of several events . . . (4) detectable emissions as indicated by an instrument reading of greater than 500 ppm above background for equipment designated for no detectable emissions.

Comment

Reference to EPA Test Method 21

Two commenters (IV-D-1, IV-D-4) pointed out that leaks defined as instrument readings of greater that 10,000 ppm should be referenced to EPA Test Method 21. One of the commenters (IV-D-4) also suggested that leaks defined as instrument readings greater the 500 ppm above background be referenced to Method 21.

Response

As recommended, the leak definition has been revised to appropriately reference EPA Test Method 21 as follows:

§61.65(w) "Leak" means any of several events . . . (1) an instrument reading of 10,000 ppm measured according to Test Method 21 (see Appendix A of 40 CFR Part 60) . . . (4) detectable emissions as indicated by an instrument reading of greater than 500 ppm above background for equipment designated for no detectable emissions measured according to Test Method 21 (see Appendix A of 40 CFR Part 60) . . .

2.4.5 Exhaust Gas

Comment

Reconsideration of "Leak" and "Exhaust Gas" Definitions

The commenter (IV-D-7) stated that unintentional emissions from equipment components for which emission limits are prescribed should not be considered exhaust gas, as proposed, but rather be considered as a leak, and requested that the proposed definitions for leak and exhaust gas be changed accordingly.

VAB.0001119922

Response

The EPA agrees with the commenter that in certain situations, "unintentional" emissions from equipment components for which emission limits are prescribed may be more appropriately regulated under standards applying to equipment leaks than standards for exhaust gas. For example, a break in an exhaust gas header to a control device resulting in emissions of VC to the atmosphere in excess of 10 ppm would apparently be subject to the 10 ppm standard for exhaust gas under the proposed definition of exhaust gas. But emissions from a broken header are likely to be detected by the area monitor and repaired in a similar fashion to leaks from specific equipment components such as valves and pumps. The facts of the situation, such as the reason for the emission, its magnitude, and the actions taken to alleviate its impacts, would be taken into account when determining the applicability of the standard to a specific incident.

Comment Reference to Limits for Equipment

The commenter (IV-D-14) stated that reference in the exhaust gas definition to ". . . equipment for which 10 ppm emission limits are prescribed" is misleading and should be deleted because the cited sections apply limits to exhaust gas and not equipment.

Response

As pointed out by the commenter, the definition of exhaust gas refers to several sections in the VC standard which prescribe emission limits for exhaust gas from various equipment in PVC and EDC/VC plants. In order to clarify any misunderstanding regarding which emissions are subject to regulation as exhaust gas, the definition has been revised as follows:

§61.61(x) "Exhaust gas" means any offgas . . . in direct contact with the equipment, for which emission limits are prescribed in . . .

Comment Reference to Disposition of Exhaust Gas

The commenter (IV-D-14) recommended that the definition of exhaust gas be revised to omit the words "directly or ultimately" because they do no contribute to the meaning of the definition.

VAB.0001119923

Response

The definition of exhaust gas intentionally specifies offgas discharged "directly or ultimately" to the atmosphere to clearly indicate that the disposition of the offgas does not affect the applicability of the "exhaust gas" standards. Whether the offgas is vented to the atmosphere, vented to a control device or combined with other offgas streams it is subject to the "exhaust gas" standards. The EPA believes the words "directly or ultimately" contribute meaning and should be retained.

Comment — Alternative Language Recommended

The commenter (IV-D-14) recommended that the definition of exhaust gas recognize that all emissions which have been treated in a control device become exhaust gas, regardless of their origin. He recommended alternative language to identify exhaust gas as the object of control to 10 ppm.

Response

One purpose of adding a definition of exhaust gas to the VC standard is to help distinguish VC emissions occurring with exhaust gas from VC emissions resulting from leaks and relief valve discharges. The EPA believes that the proposed definition better achieves that purpose. Thus, the commenter's suggestion is rejected.

2.4.6 Relief Valve Discharge

Comment — "Relief Valve Discharge" Definition

The commenter (IV-D-7) recommended an alternative definition for relief valve discharge to replace the proposed definition.

Response

The commenter's recommendation that the definition of relief valve discharge be expanded to any "non-leak discharge" through a pressure relief device designated to protect process components from overpressure conditions is unnecessary. The definition of relief valve discharge adequately serves the purpose of distinguishing relief valve discharge emissions from VC

VAB.0001119924

emissions occurring with exhaust gas and leaks. Moreover, the definition of relief valve specifies that relief valves are pressure relief devices designed to protect process components from overpressure conditions. Inclusion of this description of relief valve in the definition of relief valve discharge is redundant and unnecessary.

2.4.7 3-Hour Period

Comment

Potential for Three 3-Hour Exceedences of 10 ppm Limit

Five commenters (IV-D-1, IV-D-2, IV-D-4, IV-D-6, IV-D-14) noted that the definition of 3-hour period creates 24 3-hour periods per day with the result that a single hourly average in excess of 10 ppm could cause three 3-hour exceedences of the 10 ppm limit. Two of the commenters (IV-D-1, IV-D-4) explained that establishment of rolling 3-hour averaging periods effectively negates the intended clarification that 1-hour averages are not the intended compliance criteria. Another commenter (IV-D-14) pointed out that only eight performance tests prescribed under 40 CFR 61.67 could be performed during a 24-hour period. The commenters recommended that the 10 ppm regulations specify that a single hourly average in excess of 10 ppm can not cause more than one 3-hour period to be considered in excess of 10 ppm.

Response

The commenters correctly interpreted that the definition of 3-hour period creates 24 3-hour averages per day. In addition, the commenters correctly concluded that in cases when the control device fails significantly causing a 1-hour exceedance of the 10 ppm exhaust gas limit, the result can be three 3-hour exceedances of 10 ppm. Nonetheless, EPA believes the definition of 3-hour period is correct and should be retained.

The purpose of specifying a 3-hour average for compliance with the 10 ppm limits for exhaust gas was to improve consistency of the exhaust gas standards with the performance test requirements which specify an average of three runs of 1 hour each. The performance test method does not, however, preclude taking 24 1-hour samples during a 24-hour period.

VAB.0001119925

Rolling 3-hour periods are necessary to ensure that all 3-hour averages exceeding 10 ppm are reported. Otherwise, 10 ppm exceedances during two consecutive hours would only be averaged together if they happened to fall in the same 3-hour reporting period. Rolling 3-hour periods also help ensure timely response in correcting periods of excess emissions. In the absence of rolling averages, high readings during the first hour of a 3-hour period could be left unattended for up to two more hours without influencing reported results or the actions of operating personnel.

2.5 REVISIONS TO OTHER PARTS OF THE STANDARD

2.5.1 Exhaust Gas Standards

Comment — Lower Exhaust Gas Limit Achievability

One commenter (IV-D-12) stated that the EPA's conclusion that the previously proposed 5 ppm exhaust gas limit should be withdrawn is not supported by the support document in this rulemaking. The commenter asserted that the record supports the achievability of the 5 ppm limit by new sources and by existing sources within 3 years of promulgation. The commenter pointed to the statement in the 1977 proposal that the 5 ppm limit could be achieved through the more efficient operation of existing equipment applied to either new or existing sources. The commenter also stated that the additional emissions reduction that would be achieved through the use of a 5 ppm standard instead of a 10 ppm standard should not be foregone, given the carcinogenic nature of VC. Finally, the statement in the preamble that industry commenters objected to the "zero emission goal" which was the objective of the 1977 proposal would, the commenter stated, be counter to the requirement of Section 112 that an ample margin of safety be required.

Response

As stated in the preamble (50 FR 1184), EPA concluded during the review of the standard that 10 ppm reflects the level of performance that can be consistently achieved by primary control devices on a continuous basis. For this reason, the 10 ppm exhaust gas limit has been retained in the revised VC

VAB.0001119926

standard. In fact, however, emissions from primary control devices on a short-term basis are often much less than 10 ppm. These lower short-term emission levels would occur regardless of the level of the exhaust gas standards. Thus, tightening of the exhaust gas standards to 5 ppm was judged to be unwarranted because it would not significantly impact emissions of VC. The commenter presented no evidence which would warrant a revision of the EPA's decision.

Comment — Equipment and Work Practice Requirements

One commenter (IV-D-16) requested that the revised standard delineate what degree of control equipment "backup" is acceptable for complying with the 10 ppm exhaust gas limits when the primary control equipment is down. The commenter (IV-D-16) recommended that a provision be added to the standard requiring a double level of redundancy for backup emission control equipment used to meet the exhaust gas limits. The commenter further recommended that backup incinerators be required to be maintained on "warm" standby and that flares be approved as the second level of redundancy.

Response

Review of enforcement and compliance experience under the VC standard found that most plants have installed some level of backup control equipment to meet exhaust gas limits. For example, discussions with four EDC/VC producers indicated a range of 15 to 100 percent excess incineration capacity availability under normal operating conditions. The five EDC/VC plants operated by these producers varied in the number of production units and in their association with larger, multi-complex chemical plants. As was expected, the number and configuration of backup incinerators was different for each plant. In similar discussions with two PVC producers representing seven plants, it was learned that in addition to incineration, solvent absorption is being used for both primary and backup control of exhaust gases. Again the number, type and configuration of backup control devices varied among the different PVC plants (Docket Item IV-B-1).

VAB.0001119927

Because of the inherent differences in the plants and processes to which exhaust gas control devices are applied, coupled with the variation in effectiveness of operating these devices, it is impractical to specify the exact amount of backup needed. Nonetheless, EPA agrees, in general, with the commenter's suggestions on the need for and operation of backup control devices. For example, backup control devices are necessary to help ensure control of VC emissions in exhaust gas during periods when the primary control device is down. In the absence of a backup control device, plants might have to undergo costly shutdown of process equipment each time the primary control device is down for scheduled or unscheduled maintenance to avoid violating the 10 ppm exhaust gas limits. Even when backup control devices are available, exceedences of the 10 ppm exhaust gas limit are possible. However, plants must analyze and identify ways of operating their primary and backup control systems to improve the ability of the combined systems to continuously control exhaust gas emissions. Thus, because it is impractical to specify the degree of backup needed in the standard.

Comment — Specification of 3-Hour Averaging Period in Exhaust Gas Standards

Two commenters (IV-D-1, IV-D-4) recommended that the 3-hour averaging period be specified in three sections of the regulation where 10 ppm limits were not clarified by indicating a 3-hour averaging period.

Response

As explained in the preamble to the proposed revisions (50 FR 1192), the exhaust gas standards should appropriately specify a 3-hour average to be consistent with the performance test specifications for these emission sources.

The three sections of the regulation pointed out by the commenters have been revised as recommended.

VAB.0001119928

2.5.2 Oxychlorination Vent Standard

Comment — Withdrawal of Lower Oxychlorination Vent Standard

The commenter (IV-D-12) pointed out that the 1977 proposal would have required new oxychlorination vents to meet an emission limit of 5 ppm based on the use of oxygen as a feed material instead of air. The commenter stated that EPA has failed to present any discussion which would justify the withdrawal of this proposal.

Response

In the preamble (50 FR 1185), EPA presented evidence supporting its decision not to require more stringent control of new and existing oxychlorination vents. First, the review of the standard identified no new control technology applicable to oxychlorination vents that had been developed since the original standard was established. Second, the cost to incinerate existing oxychlorination vents was reevaluated, and the conclusion of the original standard support study (Docket Item II-A-2) that incineration of existing oxychlorination vents is not cost-effective was sustained in the new analysis. Finally, with the possible exception of one plant, new EDC/VC plants with oxychlorination reactors are not expected to be constructed. However, if constructed, a new plant would be subject to the New Source Performance Standards for air oxidation processes or to BACT or LAER requirements of new source review regulations. As a result of these regulations, new oxychlorination vents would be controlled to a level consistent with the 10 ppm exhaust gas limits in the VC standard.

No information was provided by the commenter to change the EPA's decision to retain the existing oxychlorination vent standard.

Comment — Specification of 3-Hour Averaging Period in Oxychlorination Reactor Standard

Two commenters (IV-D-1, IV-D-4) recommended that the 3-hour averaging period be specified in the emission limit for oxychlorination reactors.

VAB.0001119929

Response

As explained in the preamble to the proposed revisions (50 FR 1192), the exhaust gas limits should appropriately specify a 3-hour average to be consistent with the performance test specifications for these emission sources. This is also true for the oxychlorination vent limit. The oxychlorination reactor standard has been revised as recommended.

2.5.3 Residual Vinyl Chloride Standards for PVC Resins

Comment Withdrawal of Lower Stripping Requirements

One commenter (IV-D-12) stated that EPA withdrew the proposed reduction in the residual VC limits for new PVC resins because it was determined that only some resins can now be stripped to these levels. The commenter asserted that this conclusion is based on the assumption by EPA that an emission level must be currently demonstrated to form the basis of the standard, but according to the commenter, that demonstration is not required by Section 112. Further, the commenter stated that the lower limits are currently being achieved by many PVC production facilities and that many of the remaining facilities are close to the limits. The commenter stated that the more stringent limits could be achieved by new facilities, as well as by existing facilities if given a three year lead time, by copying the equipment and procedures currently used by the leading facilities.

Response

As discussed in the preamble (50 FR 1185), EPA rejected more stringent stripping level requirements for new resins primarily because of the difficulty in defining a "new" resin. Although resin compositions are adjusted routinely, completely "new" resins are seldom if ever made.

The EPA further concluded that there is insufficient technology basis for more stringent stripping requirements for all resins. In particular, improved stripping technology is capable of lowering residual VC levels in only some of the resins currently produced. The ability of improved stripping technology to achieve lower residual VC levels depends on the resin type and mix at a particular plant. The equipment and procedures that are effectively

VAB.0001119930

being used to strip a specific resin may be ineffective on another resin. Many plants already use improved technology where applicable to average out the stripping levels achieved for hard-to-strip resins. This technique of averaging the stripping results of hard-to-strip resins with resins that are more readily stripped allows these plants to comply with the current residual VC standard while continuing to produce the hard-to-strip resins. Increasing the stringency of the residual VC standard for all resins would, in the opinion of EPA, force some plants to discontinue production of some resins unreasonably. The commenter submitted no new information on that point.

2.5.4 Reactor Opening Loss Standard for In-Reactor-Strippers

Comment — Compliance Waiver Request

The commenter (IV-D-3) stated that the proposed calculation procedure for determining reactor opening loss for reactors used as strippers may necessitate installation of more accurate instrumentation. He requested that the regulation provide for waivers of compliance to allow time to select, order and install additional instruments.

Response

The calculation procedure for determining reactor opening loss emissions for reactors used as strippers provides plants that perform in-reactor stripping an optional method for demonstrating compliance with the emission limit for reactor openings. Plants using the calculation procedure will be required to continue their current practice for demonstrating compliance while selecting, ordering, and installing the instruments used to measure the reactor conditions necessary for calculating reactor opening loss.

Comment — Status of Previously Approved Methods

The commenter (IV-D-1) noted that the proposed emission testing requirements for reactors used as strippers appear to require all stripping operations with approved calculation methods to resubmit their calculation methods for approval and questioned whether resubmittal of already approved methods was intended.

VAB.0001119931

Response

The EPA developed a calculation procedure for determining reactor opening loss emissions from reactors used as strippers to provide a uniform method for use by all plants that perform in-reactor-stripping. However, plants may continue to determine reactor opening loss emissions from reactors used as strippers by previously approved methods. Resubmittal of already approved methods is not required. However, Regional personnel may review these previously approved methods in light of the newly prescribed calculation procedure and require changes in existing procedures where appropriate.

2.5.5 Inprocess Wastewater Standard

Comment — Request for Approval of Method 601

Two commenters (IV-D-8, IV-D-9) suggested that the VC standard allow either Method 601 or the currently required Method 107 for measuring the VC concentration in inprocess wastewater. The commenters explained that Method 601 has a detection limit of 0.01 g/l (0.01 ppb) and should, thus, be acceptable for inprocess wastewater measurement.

Response

Method 601 of 40 CFR 136.3(a) is acceptable for measurement of VC in inprocess wastewater, and 40 CFR 61.67(g)(2) has been amended to allow its use.

2.5.6 Equivalent Equipment and Procedures

Comment — Status of Previously Granted Equivalencies

Two commenters (IV-D-8, IV-D-9) recommended that the provision on obtaining approval for equivalent equipment and procedures indicate that previously granted equivalencies will remain in effect for existing facilities.

Response

Any Agency approval previously given to equivalent equipment and procedures pursuant to Section 61.66 will remain valid and effective unless they are specifically modified or withdrawn by EPA. Alternative numerical

VAB.0001119932

emission limits cannot be granted in place of an established emission limit, but only alternative means of emission limitation.

2.6 MISCELLANEOUS COMMENTS

Comment — Regulatory Flexibility Act - Small Business Definition

The commenter (IV-D-3) stated that EPA incorrectly concluded that no small business (i.e., less than 500 employees) is affected by the proposal. The commenter's subsidiary PVC company has 300 employees.

Response

In response to the comment there are three points that are important. The first point is that at the time the economic analysis (Docket Item IV-B-11) was performed the commenter's company did not exist.

The second point is that the Regulatory Flexibility Act (RFA) defines a small business based upon the size of the total company including the parent company plus all subsidiaries, rather than the size of individual subsidiaries or individual plants. The commenter's assertion that it is a small business referred only to the size of a subsidiary and not to the total company. Later information provided in response to questions from EPA shows that the total company is not a small business because it has more than 500 employees.

The third point is that size alone is not the only test in assessing the need for a regulatory flexibility analysis. Significant economic effects must also be likely, otherwise a regulatory flexibility analysis is not required. The EPA does not expect such effects. Therefore, for the reasons cited above, the regulatory flexibility discussion currently in the economic analysis in the BID does not require any changes.

Comment — Economic Impact of Standard

The commenter (IV-D-3) stated that costs required to comply with the VC standard have a negative impact on the industry's profitability and competitive situation in regard to foreign producers.

VAB.0001119933

Response

The commenter discusses three subjects in its comment and its supplementary information:

- the general economic condition of the domestic VCM/PVC industry
- the economic condition for the commenter's facility specifically (but with only a limited amount of supporting financial information)
- the foreign competition.

The economic analysis presently available (Docket Item IV-B-11) includes consideration of the above subjects (with the exception of information specific to the commenter's facility because it did not exist at the time). Consideration of the general economic condition of the domestic industry runs throughout the analysis. Foreign competition is also specifically discussed in Section 8.1.8. More than 2 years have passed since the economic analysis was completed, so naturally changes have occurred in the industry during the interim. However, the new information supplied by the commenter about the industry in general and about foreign producers is not significantly different from what is currently in the economic analysis. Overall, the economic analysis appears to be reasonable in addressing the impact of the VC standard on the VCM/PCV industry.

The financial information presented by the commenter concerning its specific situation is insufficient to permit a detailed examination. Also, because the firm is only about 1-1/2 years old, its young age sharply limits the value of an analysis of historical financial performance. Two points indicate that the current economic analysis is reasonable. The first point is that, in general, the commenter's situation seems to be reasonably similar to the model plant analysis presented in the economic analysis. For example, a calculation of the cost increases per kilogram of capacity indicates that the cost increases presented are approximately the same as those for the model plants. The second point is that the owners and managers of the commenter's facility are not newcomers to the industry. Therefore, because the owners and managers had a high degree of prior knowledge about the industry, considerable importance should be attached to the fact that they elected to proceed and purchase the plants in question as recently as July 1984.

VAB.0001119934

Comment VC Emissions from Landfills

The commenter (IV-D-10) agreed with the EPA's approach of requiring plants that generate off-specification PVC resins to meet standards designed to facilitate the ultimate disposer of the off-specification resin in complying with the environmental regulations applicable to hazardous waste disposal.

The commenter expressed concern that stripping requirements for off-specification PVC resins prior to removal to landfills may not be sufficient to prevent subsequent exceedences of the proposed drinking water standard for VC. The commenter explained that VC contamination of drinking water is likely because PVC resin is not legally a hazardous waste and is therefore not required to be disposed in facilities regulated under Subtitle C of the Resource Conservation and Recovery Act (RCRA). The commenter urged EPA to better coordinate all regulatory activities pertaining to VC.

Response

This rulemaking is limited in scope to the regulation of atmospheric emissions of VC from off-specification PVC resins in landfills. In this **context, the stripping requirements in the standard for off-specification PVC resins are believed to be the most effective way of limiting VC emissions from PVC resin in landfills.** If there are other environmental consequences of the disposal of off-specification PVC resins, appropriate restrictions can be applied under other statutes.

Comment Offer to Assist RCRA Task Force

The commenter (IV-D-1) offered to provide assistance to the Task Force established under Subtitle D of RCRA in their assessment of emissions of VC from hazardous waste facilities, municipal landfills and other air emission sources. Further, he requested that his organization be kept informed on the task force's activities.

Response

The commenters' request has been forwarded to the RCRA Task Force.

VAB.0001119935

Comment — Reporting of Design Capacity

The commenter (IV-D-3) stated that the requirements in proposed 40 CFR 61.70(f) for plants to report design capacity information is inappropriate as this information is proprietary. Further, plants that strip in the reactor should not be required to provide design capacity information because it is irrelevant for compliance determination and other plants should be allowed to provide design capacity in a separate confidential document.

Response

The information being requested in this provision of the standard is the design capacity of a PVC plant in terms of an estimate of the number of polymerization batches the plant is capable of producing, rather than specific batch sizes or rates. Such information would not reveal significant information on actual production and, consequently, would not ordinarily involve confidentiality problems. However, if the owner or operator of an affected facility has reason to believe that this or any other information submitted to EPA should be treated as confidential, such treatment can be requested at the time of submittal and a decision on the request can be made by EPA.

In the case of plants that strip in the reactor, no reporting of design capacity data is required. For the added compliance method for in-reactor-strippers, plants need only report VC emissions calculated to be in excess of the combined limit for reactor opening loss and sources following the stripper. Information on design capacity needed for the calculation method need only be retained at the plant in the records for compliance calculations.

Comment — CERCLA Reporting Requirements

Three commenters (IV-D-1, IV-D-6, IV-D-14) requested clarification on the applicability of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) reporting requirements to sources regulated under the VC standard, specifying whether VC releases from EDC/VC and PVC plants are required to be reported under CERCLA. Commenter IV-D-14 specifically questioned whether emissions below the threshold concentration defining an actionable leak are intended to be reported under CERCLA. A third commenter

VAB.0001119936

(IV-D-12) stated that relief valve discharges of VC are reportable under CERCLA, except to the extent that they are the result of a genuine emergency.

Response

Under the provisions of CERCLA, releases of hazardous substances which are federally permitted are not subject to CERCLA notification requirements and liabilities. The definition of "federally permitted release" in Section 101(10) of CERCLA specifically includes ". . .(H) any emission into the air subject to a permit or control regulation under . . . Section 112 . . . of the Clean Air Act . . ." therefore, emissions in compliance with this standard are not subject to CERCLA. However, emissions exceeding this standard and the reportable quantity provisions of CERCLA are subject to both statutes.

Comment

Reporting and Recordkeeping Requirements

Four commenters (IV-D-3, IV-D-8, IV-D-12, IV-D-13) addressed the proposed reporting and recordkeeping requirements. The first commenter (IV-D-3) disagreed with the EPA estimates that the annual paperwork burden will be reduced by 2.8 person years by the proposed revisions. The commenter claimed that the inclusion of the Subpart V requirements would necessarily increase the paperwork burden. The second commenter (IV-D-8) stated that the proposed changes in reporting requirements represent an emphasis on emission reduction rather than increasing paperwork. The third commenter (IV-D-12) stated that all test results should be reported, not just those that exceed the standards. Such a requirement would promote accuracy and completeness and permit EPA to build a data base for future revisions of the standard.

Response

The reporting and recordkeeping burden resulting from the revised standard was evaluated by EPA using standard Agency procedures to arrive at the estimate that the burden would be reduced by 2.8 person-years. Basically, this estimate reflects the reduction in reporting and recordkeeping requirements in the revised standard. The calculations on which this estimate is based have been reviewed by OMB as a part of the Information Collection

VAB.0001119937

Request, which is available for inspection in the docket (Docket Item IV-F-1). The commenter has suggested no specific errors in this analysis nor recommended an alternative analysis.

The submission of all test data associated with the standard has not been required because such a requirement would impose an unnecessary burden on both the respondent and EPA. It is more productive to check into the accuracy and completeness of calculations as the need arises (using the authority of Section 114) than to handle a quantity of routine reports. The calculations are required to be maintained for a 3-year period. Further, an adequate data base for future review of the standard can be obtained without such extensive commitment of resources to reporting.

Since proposal, EPA decided to retain 10-day reporting requirements for relief valve discharges. In addition, quarterly reporting of excess emissions will be required instead of semiannual reporting, as proposed. The net result of the promulgated changes to reporting and recordkeeping requirements is not expected to significantly increase or decrease the paperwork burden compared to the existing standard.

Comment — Typographical Errors

Five commenters (IV-D-1, IV-D-3, IV-D-6, IV-D-8, IV-D-9) pointed out typographical errors in the Federal Register notice.

Response

The typographical errors have been noted and those contained in the regulation will be corrected at promulgation.

VAB.0001119938

3.0 PETITION FOR RECONSIDERATION

In response to the EPA's notice that the Agency did not intend to promulgate the amendments to the VC standard which were proposed in 1977, the Natural Resources Defense Council (NRDC) and the Environmental Defense Fund (EDF) submitted a petition for reconsideration to the Agency.

The NRDC/EDF petition was based on four main objections. First, NRDC/EDF stated that the EPA's announcement that it did not intend to promulgate the proposed amendments was a final administrative action, which was not preceded by a notice proposing the withdrawal and allowing for public comment on the action. Second, NRDC/EDF objected to the EPA's use of cost information in the standards setting process, stating that the balancing of the costs and benefits of VC emissions control is in conflict with the requirements of Section 112 of the Clean Air Act. Third, NRDC/EDF objected to any interpretation of Section 112 that establishes a requirement that a level of emission control be "consistently achieved" in order to form the basis of a standard. Finally, NRDC/EDF stated that the EPA's decisions on specific portions of the proposed amendments were in conflict with the evidence before the Agency on those issues.

The criteria established for granting such a petition for reconsideration are: (1) the petition must be based on information which was not and could not reasonably have been presented during the original rulemaking; and (2) the petition must provide substantial support for the argument that the challenged action should be changed. See Denial of Petition to Revise NSPS for Stationary Gas Turbines, 45 FR 81653 (December 11, 1980). The objections raised in the petition submitted by NRDC/EDF in this rulemaking do not meet either criterion.

The first objection raised by NRDC/EDF, that there was inadequate opportunity for public comment concerning the Agency's decision not to

VAB.0001119939

promulgate the proposed VC regulations, is not supported by the record of this rulemaking. Between the proposal of the amendments to the VC standard and the decision not to promulgate them, 8 years have elapsed. During this time, the amendments, their potential consequences, and the alternative actions before the Agency were all in the public record, and specifically communicated to NRDC and EDF prior to the NAPCTAC meeting. In light of this record, EPA does not believe that an additional public comment period would be either necessary or helpful in the resolution of these issues.

The second issue raised by NRDC/EDF in the petition for reconsideration concerned the consideration of costs of control in setting the standard. It is the EPA's judgment that the VC standard satisfies the requirement of Section 112 of the Clean Air Act that the standard be set at a level which provides an "ample margin of safety" to the public. Further, EPA believes that cost and feasibility may be considered in setting the standard. This argument has been fully examined by the Agency, as discussed in the 1975-1976 VC rulemaking and discussed in the Agency's brief in NRDC v. EPA , No. 85-1150 (D.C. Cir). No additional information in support of their argument has been put forward by NRDC/EDF.

The third issue raised by NRDC/EDF concerns whether an emission level must be "consistently achieved" in order to form the basis of the standard. This issue was raised with specific reference to the 10 ppmv standard for exhaust gas VC emissions. This standard was selected because it was determined that it provides the public with the ample margin of safety required by Section 112. Although a lower emission limit might be assumed to increase that margin, such a level has not been shown to be achievable on a long-term, never-to-be-exceeded basis. No additional information has been submitted by NRDC/EDF to refute the finding that the 10 ppmv emission limit for exhaust gases provides the required margin of safety for the public.

Finally, the petition points to three actions made by the Agency in this rulemaking which NRDC/EDF believe to be contrary to the evidence before the Agency on those issues. These actions are: (1) the decision not to promulgate the 5 ppmv standard for exhaust gases in favor of the existing 10 ppmv standard; (2) the decision not to promulgate the 5 ppmv standard for

VAB.0001119940

oxychlorination vents; and (3) the decision not to lower the residual VC limit for new dispersion resins from 2,000 ppm to 500 ppm, or to lower the limit for other resins from 400 ppm to 100 ppm. In each case, the petitioners presented no new information in the petition for reconsideration relevant to the decision to retain the existing standards.

VAB.0001119941

TECHNICAL REPORT DATA
(Please read Instructions on the reverse before completing)

1. REPORT NO. EPA 450/3-86-004	2.	3. RECIPIENT'S ACCESSION NO.
4. TITLE AND SUBTITLE Vinyl chloride standard: Responses to Comments on January 1985 Proposed Revisions		5. REPORT DATE September 1986
		6. PERFORMING ORGANIZATION CODE
7. AUTHOR(S)		8. PERFORMING ORGANIZATION REPORT NO.
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT NO.
		11. CONTRACT/GRANT NO.
12. SPONSORING AGENCY NAME AND ADDRESS Office of Air and Radiation U.S. Environmental Protection Agency Washington, D.C. 20460		13. TYPE OF REPORT AND PERIOD COVERED
		14. SPONSORING AGENCY CODE EPA 200/04
15. SUPPLEMENTARY NOTES		

16. ABSTRACT

This document summarizes and responds to comments on the proposed revisions to the vinyl chloride standard set under Section 112 of the Clean Air Act.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
NESHAP Hazardous Air Pollutants Vinyl chloride		

18. DISTRIBUTION STATEMENT Unlimited	19. SECURITY CLASS *(This Report)* Unclassified	21. NO. OF PAGES 78
	20. SECURITY CLASS *(This page)* Unclassified	22. PRICE

EPA Form 2220-1 (Rev. 4-77) PREVIOUS EDITION IS OBSOLETE

VAB.0001119942

United States
Environmental Protection
Agency

Office of Air and Radiation
Office of Air Quality Planning and Standards
Research Triangle Park, North Carolina 27711

Official Business
Penalty for Private Use
$300

If your address is incorrect, please change on the above label; tear off; and return to the above address.
If you do not desire to continue receiving this technical report series, CHECK HERE ☐; tear off label; and return it to the above address.

VAB.0001119943