



Interoffice Communication

To J. C. Ledvina - Houston
From M. G. Hayes - Westlake
Date March 27, 1981
Subject Proposed Comments
Re: VOC Fugitive Emission Sources in the Synthetic Organic
Chemicals Manufacturing Industry, New Source Performance
Standards, 40 CFR Part 60, Proposed 1-5-81

The following comments are submitted for consideration in promulgating the above named regulation. The comments are presented in such format as to separately address the various aspects of the regulations.

1. In compliance with Executive Order 12291, the proposed regulation should be rescinded or withdrawn, or the proposal date moved forward to coincide with the expiration of the Executive Order. This is due to the consideration of the proposal date of the regulations being the effective date upon final promulgation and carrying the weight of law.

2. Applicability

Unlike other New Source Performance Standards which apply to major expansions or significant unit additions, these standards appear to be applicable to any level of expansion within an affected industry. Our recommendation is to apply a level of significance for an expansion or modification, either in the form of a de minimis increase or in the setting of a predetermined number of emissions sources to trigger the NSPS applicability. Our recommendation of de minimis level determined to be appropriate is a 20 tons per year increase in emissions for a process unit. This represents an increase in 228 valves.

3. Applicability

For existing plants which are being expanded, any source of VOC ought to be allowed as offsets for new fugitive emissions to avoid NSPS applicability; i.e., point sources could offset fugitives.

4. Applicability

The applicability portion of the regulation specifically concerning the use of Appendix E for the determination is unnecessarily vague. It is our recommendation that this portion of the regulations clearly state "the VOC NSPS shall apply to those process units containing 10% or greater of the product which is listed under Appendix E."

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5. Applicability

The inclusion of the vapor pressure consideration is vague and inconclusive. Use of this method of determination should be clearly stated in the regulations under applicability, or eliminated altogether.

6. Vapor Pressure - 0.3KPa

We object to the level at which the vapor pressure was determined, as well as question EPA's good faith effort in using a term which is both obscure and unnecessary. Setting a vapor pressure limitation of .0435 psia is arbitrary and capricious. Should EPA feel that emissions sources of less than 1.5 psia represent significant fugitive sources, the basis should be demonstrated and acted upon that basis. Nothing in the proposed regulations acts to demonstrate the benefit this increased level of control would supposedly achieve; indeed, it is felt on the surface that the obscure term is an effort by EPA to increase levels of control on the SOCOMI industry as painlessly from their standpoint as possible. Our recommendation is that the vapor pressure cutoff be at the standard 1.5 psia level; any efforts to lower this should be explained and justified in an open manner.

7. Compliance

Compliance with these regulations, after promulgation, will mean significant changeout of pieces of process equipment; in many cases, practical only during complete process shutdowns. We recommend, in an effort to minimize adverse economic impact due to unscheduled downtime, that initial compliance with the equipment standards occur with the first (scheduled) planned shutdown or turnaround of the process unit, on the basis of a (compliance) schedule which would consider equipment delivery lead times.

8. Emission Control Devices

EPA should include process flares as acceptable combustion devices for control of fugitive emissions until flare efficiency in this type of service is proven ineffective. Flares are common to most SOCOMI processes; their use as control devices is reasonable until the current EPA evaluation of flare efficiency is completed. Otherwise, the energy impact, operational, and capital costs of installation of incineration devices must be compiled into the total cost summary by EPA to give an accurate reflection of the cost of these regulations. The total energy costs on an industry-wide basis must be considered for the additional incinerators.

9. A number of distinct comments on the interaction between NESHAPS and NSPS Regulations are covered under this inclusion. These are handled

under this single comment number only to reflect the comments do relate to the NESHAPS.

- A. The preamble of the Proposed New Source Performance Standards, page 1138, indicates regulation of facilities covered under both the proposed NSPS and an applicable NESHAPS would be regulated under the NESHAPS. We agree with the premise; however, it should be clearly stated in the applicability portion of the regulations that sources which are regulated under the NESHAPS program are not subject to the NSPS.
- B. As facilities handling vinyl chloride, in streams of 10% or more by weight, are covered under the NESHAPS program, this substance should be deleted from Appendix E.
- C. We recommend that facilities which have established monitoring programs, or will be required to establish monitoring under an applicable NESHAPS standard, should be allowed to expand the program to those areas within the source to which the VOC NSPS would apply. This would eliminate the costs associated with having two separate programs in effect for the source; the monitoring and record keeping program under the NESHAPS would afford a greater level of control with greater simplicity.

10. Monitoring Program Alternatives

We recommend an alternative approach to monitoring be named in the regulations to be allowed for facilities to which the New Source Performance Standard would apply. Specifically, we recommend as an alternative means of monitoring the program as defined under the Vinyl Chloride NESHAPS standard under Subpart F CFR 61.65(b)(8). We feel that alternative monitoring systems which are equivalent to the NESHAPS for Vinyl Chloride should give reductions which would be in excess of the reductions under the NSPS monitoring program. This alternative should be available to non-NESHAPS affected facilities and so should be as an alternative included in the final regulations.

- 11. We feel the basis for the monitoring program presented in the proposed regulations is questionable and would result in a program which is not only overly stringent but also operating expense and manpower consumptive (or labor and equipment intensive). The EPA determination falls far short of the requirements for compliance with the proposed program. Our estimation is based on the following points. We feel that prior to promulgation of the monitoring requirements in final form, the proposed regulations should be closely reevaluated with each of the following points considered:

- A. Use of the Radian Report as a basis for manpower on time requirements should be reevaluated, as their results are highly questionable when

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applied to total facility monitoring requirements. Utilization of selected sampling points and emissions sources has apparently resulted in unrealistic time estimates.

We estimate 95 manhours per month to be far short of time that would be required to sample 2,800 valves. Our most conservative estimate to monitor a facility containing 2,800 valves would take 417 manhours per month, or slightly less than 10 minutes per valve. This is considering all valves to be readily accessible. Considering a historical chemical industry worker productivity of 50%, using 417 manhours per month, and 160 worker manhours per month, the subject plant would require a minimum team of 5 to 6 persons to complete only the valve monitoring requirements. This manpower requirement would be graduated accordingly with the number of inaccessible valves, which would require the use of safety harnesses, approximately 20% of all valves, cranes or scaffolding to access the sampling point, extending the sampling time well beyond the ten-minute time estimate. This manpower requirement does not include the remainder of the monitoring requirements or the monitoring team record keeping requirements.

- B. On the basis of the reevaluation as discussed under 9.A., we recommend the monitoring requirements for valves be reduced to quarterly monitoring for the first year; those valves which are not found to be leaking would be monitored once annually after that time. This scheme would allow a two-man monitoring team to complete the first year monitoring requirement, operating full time; and in subsequent years, free them to perform other tasks in the interest of productivity in other areas. We feel the slight increase in emissions would be offset by the excessive cost incurred by the additional four members of the monitoring team.
- C. Monitoring of safety/relief valves presents a number of seemingly insurmountable problems. We recommend proposed control of these sources be waived or eliminated from the final regulations until such time as reasonable methods of control are determined.
 - (1) Approximately 90% of all safety/relief valves are inaccessible for sampling purposes and would require scaffolding to be constructed. This represents a significant capital cost consideration.
 - (2) Safety considerations in having monitoring personnel access safety/relief valve areas on a regular basis make monitoring unnecessarily hazardous work. We do not feel that the low level of emission control achieved justifies the hazards inherent to monitoring; this requirement should be removed.
 - (3) A consideration to eliminate fugitive emissions from safety relief valves, as noted in the preamble, is the recommended use of rupture

discs. A serious problem with this approach is that due to problems with corrosion or fatigue, rupture discs often fail prematurely. This will ultimately cause problems with downtime and associated costs, as well as the increase in VOC emissions due to the otherwise unnecessary opening of the vessel to replace the rupture disc. We do not feel this to be an acceptable alternative.

- (4) Venting of emergency releases from rupture discs and emergency relief valves, on larger tanks and vessels, to incineration devices will also create operations hazards due to design limitations. The surge in organics to the incineration process will also limit the process destruction efficiency (this is a problem shared by flares). We do not feel this to be a viable control option.
- (5) Based on the considerations named in C(1), (2), (3), and (4), our recommendation for the control of VOC from safety/relief valves would be service of all safety/relief mechanisms during scheduled turnaround or downtime to minimize those emissions.

D. Further considerations in operating costs and manpower must be made in the EPA determination of costs and impacts prior to finalizing a monitoring regimen.

- (1) For a facility with 2,800 valves, manpower to establish the monitoring program would be 15 to 20 mandays of engineering time and 250 to 300 mandays of drafting time. Periodic minor revisions in the plant will have to be shown on monitoring schematics requiring continuous drafting time.
- (2) Record keeping for monitoring, maintenance, and reporting will include maintaining record keeping submitted by the monitoring team, writing work orders and/or scheduling maintenance of valves; following up on maintenance activities, including the repair records, compiling quarterly reports, and writing justifications for continued operation of leaking equipment. For the base facility of 2,800 valves, and considering work efficiency, we estimate this will consume a minimum of 190 manhours per month; i.e., another full time employee.

12. Prior to institution and finalization of the maintenance program as outlined in conjunction with the monitoring program, the following considerations should be addressed.

- A. The EPA estimate of 16 manhours per month to fulfill maintenance requirements is far too low. As a breakdown of time requirements was not given, an evaluation could not be made of the time estimated

to service both readily accessible and inaccessible valves, an estimate of the number of valves and seals which would require service, or replacement per month. Replacement of a large single valve alone could consume in excess of the allotted 16 hours; change out of a small valve which is readily accessible requires on manday. Our estimates, based on a four percent leakage rate for valves in a facility of 2,800 valves and the requirement that no more than two percent leak, indicate the manpower requirement of 28 manhours per month. This is based on 56 easily accessible valves and a demonstrated valve tightening time of thirty minutes per valve, with no consideration to manpower efficiency.

Therefore, our recommendation is the maintenance requirement be re-manded for further consideration (with the monitoring requirements). During the interim period, the program should at minimum allow the first attempt at repair in the first fifteen days, the second attempt at repair in the first thirty days.

- B. A serious concern with the leak repair program for valves, as it calls for tightening of valves upon determination a leak exists, is whether sufficient investigation into this wholesale approach has been accomplished. Certain types of valves may not be responsive to this approach; with certain types of valves, this program will make emissions worse. Unless a valve was improperly installed in the first place, it will be tightened; with teflon packing, overtightening will frequently cut or shear the packing. This point, overtightening's destructive impact on packing, was pointed out in the preamble. It is our feeling that overtightening will frequently result in increases in emissions, shorten valve life, and act to be counterproductive to the intent of the regulation. There has also been inadequate guidance on procedures for tightening valves, for the various types of valves. Therefore, we recommend this portion of the regulations be withdrawn. A program of this magnitude with the high potential for emissions increases, as well as cost and downtime potential, should be withdrawn until the following points are addressed:

- (1) Determination by further study of which type valves are likely to respond to tightening and which are likely to be adversely affected.
- (2) Specific guidance on procedures for methods of tightening the various types of valves, so that maintenance personnel will be advised on the proper techniques. Otherwise, the potential for increase of emissions due to human error will rise dramatically.

13. Capital Costs

In consideration of the capital costs for compliance with the proposed regulations, for a modified or expanded facility, the \$300,000 average per facility is woefully short of the amount that would be required. By way of these comments, we respectfully request a breakdown of the estimated costs prior to promulgation of these regulations in final form. Certainly the total cost of compliance must be a consideration in determination of the benefits of monitoring each of the sources proposed, and the basis for frequency of monitoring. As in the other areas covered, we feel the estimated capital cost, based on the average cost per facility given by EPA, to be short of the requirements. We recommend these regulations be postponed or otherwise remanded, until the capital cost consideration be addressed, to be certain the capital is effectively expended.

14. Based on the comments 2-13, we feel insufficient development and study has gone into the regulatory package proposed; we feel it questionable as to whether the regulations in the present form will provide any environmental benefit. Certainly increases in emissions will result from:
- A. Purging of lines so that a valve may be accessed. It is physically impossible to purge all lines to a combustion device; replacement of valves during a non-turnaround period will cause emissions which are likely to exceed the benefit achieved.
 - B. Closed sampling systems will require at least four valves to operate; in most instances, the emissions from the valves will exceed the emissions from the sampling system. This is reflected by the emissions factors.
 - C. Damage to valves due to overtightening, shearing, or otherwise destroying the packing. In a typical chemical facility, if replacement of the valve would mean a process shutdown and the leakage from the valve does not present exposure or safety hazards, the valve will be allowed to remain in operation; thereby increasing emissions. Several "unrepairable" valves could conceivably negate any benefit the proposed regulation could have had.

We feel that to promulgate these regulations without further consideration of all factors named herein would be premature. We recommend these regulations be withdrawn for further consideration and repropose at a later date.

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