



TO See Distribution DATE November 7, 1984

FROM Dick Holliday/
Ken Komoroski SUBJECT NESHAP VC Regulations

The authors attended a meeting, as members of the Vinyl Institute, with the US EPA in Durham, North Carolina on October 30, 1984. An attendance sheet is attached. The purpose of the meeting was to discuss issues of the pending draft NESHAP vinyl chloride control regulations. EPA has been very responsive to many comments previously submitted by the Vinyl Institute, but a few significant issues remain. A summary of these issues and their status follow.

IN VINYL CHLORIDE SERVICE

The definition of "in vinyl chloride service" in the draft regulations states that it "can be reasonably expected never to exceed 10% (vinyl chloride) . . .". This definition is used to determine which equipment is subject to emission limits. The Vinyl Institute noted that "never" is impossible to comply with and requested that it be removed from the definition. EPA seemed receptive and will consider the change.

EDC Purification

The definition of "EDC Purification" in the draft regulations has been greatly expanded and would subject a significant amount of equipment for BF Goodrich, PPG, and Vista to emission limitations which they were not previously required to comply with. PPG's cost of compliance would be \$680M to control 100 lbs. of VCM per year. EPA stated that they "generally don't control sources which cost this much per ton (of VCM) to control". They plan to review the data provided to them and will consider amending the definition so as not to include any additional equipment.

RELIEF VALVE DISCHARGES

The draft regulation definition of "Relief Valve" includes SRV's, R/D's and "other pressure control systems". Also, EPA proposes to allow four relief valve discharges per plant. The Vinyl Institute's concern is that this definition would include automatic diversion valves on vent headers. EPA has removed "other pressure control valves" from the definition, will consider putting "to the atmosphere" in the definition, and will add clarifying language in the preamble when proposed in the Federal Register.

VENT STREAM, CONTAINING > 10 ppm VCM

EPA has revised the definitions in the draft regulation to prevent mixing of gas streams which contain greater than 10 ppm VCM with streams containing less than 10 ppm VCM. The Vinyl Institute noted that this is occasionally done for convenience and economy reasons and not to dilute streams to meet the standard. The EPA will consider addressing the problem of dilution as a means of emissions control with other language.

LEAK DETECTION

EPA proposes to replace the current, site specific leak patrol regulatory section with the generic "Subpart V" regulations. This would force Vinyl Institute members to conduct far more time consuming inspections, collect more extensive records and replace HNU meters with portable GC's. The Vinyl Institute argued that existing leak patrols were sufficient. EPA agreed that many existing programs were as stringent as the proposed programs, but still wants to establish a "one program for all" leak patrol regulation. EPA listened, but may proceed with their "Subpart V" plans, regardless.

INCINERATOR BY-PASSES

EPA has agreed that some incinerator by-passes at VCM plants are necessary. They are considering allowing a 99 percent on-stream performance factor for incinerators in addition to the existing 10 ppm limit through the control device. Due to deadline restrictions, this improvement may not be included until a later proposed rulemaking can take place. EPA plans to solicit additional data from the VI regarding by-passes to support the 99 percent factor.

SUMMARY

EPA was open minded and realistic about the remaining issues. This does not mean that Vinyl Institute members will get every revision requested, but at least EPA seemed to be listening. Overall, the proposed regulations will include some pluses and some minuses, but should have little significant adverse effects for PPG (and should actually be easier to operate under than existing regulations). The Vinyl Institute has been the key to this result and we strongly recommend that PPG actively participate in this and future endeavors to, not only ensure that PPG's interests are protected, but to demonstrate to EPA that the Vinyl Institute does represent the vinyl industry.

/bh

Attachments

See Distribution
NESHAP VC Regs
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VINYL INSTITUTE/U.S. Environmental Protection Agency Meeting

October 30, 1984

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Fred Dimmick	EPA/SDB	919/541-5578
Leslie Evans	EPA	919/541-5671
Karen Fidler	Radian	919/541-9100
Reese Howle	Radian	919/541-9100
Bob Rosensteel	EPA/CPB	919/541-5605
Jeff Shumaker	Radian	919/541-9100
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40 CFR Part 61.61 (0)
REVISION OF THE DEFINITION OF "ETHYLENE DICHLORIDE PURIFICATION"

EPA Response to Vinyl Institute NAPTAC Comments

"The revision to the definition was not intended to broaden the existing definition but was intended to clarify the definition because certain plants had misinterpreted what equipment was covered. The existing definition was intended to include inprocess storage tanks (where vinyl chloride may be present) and not final product storage tanks (where vinyl chloride is not expected to be present). The reason for the revision will be added to the preamble. (Meanwhile, the BF Goodrich representative indicated that he would submit information on the vinyl chloride content of liquid ethylene dichloride and vapor space in storage tanks that might, in his opinion, be regulated by the revised definition as written. The purpose of this submittal is to help us clarify which tanks in fact we intended to be covered by the standard.)

VINYL INSTITUTE RESPONSE:

As we stated at the NAPTAC Meeting in Durham on August 30, 1984, EPA has presented no rationale or discussion concerning revision of the definition of "ethylene dichloride purification." No justification has been presented for inclusion of storage tanks in this definition. No estimates of vinyl chloride emissions or cost impact for including storage tanks was provided. Absolutely no technical, environmental or economic justification was provided.

To demonstrate that storage tanks do not pose a significant source of vinyl chloride emissions and that the cost associated with required controls is not justified we present the actual data from the plants involved as follows:

PLANT	TANKS	SIZE (M GALLONS)	VCM EMISSIONS (Tons/Year)	COST OF CONTROLS
(BFG)	A	8	1.3	2,800,000
	B	1	0.03	20,000
(DGC)	C	7	105	680,000

* Total of 7 tanks

Cost / ton

A	2.15×10^6
B	$.67 \times 10^6$
C	13.5×10^6

From AP 42, Supplement 12

$$L_B = 2.26 \times 10^{-2} M \left(\frac{P}{14.7 - P} \right)^{0.68} D^{1.73} H^{0.15} \Delta T^{0.5} F_p C K_c$$

Where L_B = Fixed roof breathing loss, lb/yr. organics
 M = Molecular weight lb/mole
 P = True vapor pressure at bulk liquid condition psia
 D = Tank diameter, feet
 H = Average vapor space height, including roof volume correction, ft.
 ΔT = Average ambient temp. change night and day, °F.
 F_p = Paint factor (from Table 4.3.2).
 C = Adjustment factor for small diameter tanks (from Figure 4.3.4).
 K_c = Crude oil factor (.65 for crude oil, 1.0 for gasoline and other liquids).

V-130 (at OCD)

M = 35.8 Average
 P = 2.53 psia (Organics)
 D = 30 ft.
 H = 8 ft.
 ΔT = 9.3°F
 F_p = 1.0
 C = 1.0
 K_c = 1.0

$$L_B = (.226) (99) (.344) (3593.3) (2.89) (3.05) (1) (1) (1) \\ = 2437.6 \text{ lbs EDC/yr}$$

$$VCM = 2437.6 \times .0235 = \underline{57.3} \text{ lbs/yr. (VCM)}$$

TANK CONDITIONS

Tank - V- 130
Dimensions - 30 ft. diameter x 40 ft. high
Tank Color - White
Paint Condition - Good
Liquid Temperature 35°C.
Liquid Level - Constant
Material - Ethylene Dichloride
Weight Fraction EDC in Vapor - 0.0235

INCINERATOR OPERATION NUMERICAL STANDARD

Comments were made by two companies at the NAPCTAC meeting regarding a numerical standard for incinerator bypasses. By letter, EPA responded that the current 10 ppm three hour averaging standard is adequate to allow for brief incinerator bypasses due to malfunction. However, it is the Vinyl Institute's members experience that very few incinerator bypasses could meet the 10 ppm three hour average. Assuming that the vent gas concentration going to the incinerator is 1% vinyl chloride, a bypass of over 15 seconds would be unable to meet the three hour time weighted average of 10 ppm.

Most bypasses occur in vinyl chloride monomer plants. Every plant producing VCM has redundant systems to control emissions. Despite these redundancies vent gas is bypassed around the incinerator to protect the incineration system and vent headers from damage. Without these bypasses, damage to the emission control system would result in greater emissions due to equipment failure and process shutdown.

Over the past 8 eight years the industry has shown that incinerators cannot stay onstream 100% of the time. Adding redundant equipment increases onstream time, but only marginally. In this rulemaking, EPA recognizes that a numerical standard based on the experience of well operated plants is reasonable for relief valve discharges. In the water program, EPA has recognized that 100% onstream time for pH monitoring is unrealistic. The thinking behind these concepts is sound and we believe it applies to incinerator bypasses.

The Vinyl Institute suggests that bypasses of the incinerator be allowed 1% of the time on an annual basis. A limited survey of the industry indicates that approximately 80% of the vinyl chloride monomer plants can achieve 99% onstream time. (See the attached table.) This is based on a approximation of past years performance for 8 vinyl chloride monomer plants in the United States. The average emission per bypass is about 20 pounds VCM. The impact of such a small emission is insignificant considering that a moderate size PVC plant producing 1MM pounds per day is allowed to discharge over 400 pounds of VCM and still comply with the standard.

The Vinyl Institute thinks an incinerator bypass provision is justifiable. We are willing the work with EPA to provide supporting information for a 1% or 87 hour per year bypass provision.

LEAK DETECTION AND ELIMINATION

GENERAL STATEMENT: The combination fixed monitoring and portable monitoring leak detection and elimination (L,D,& E) programs currently employed by PVC/VCM producers are superior to VHAP regulations because:

1. Continuous (24-hr/day; 7 day/week) L,D,& E is provided.
2. Entire operation is covered (without exemptions).
3. Patrols are made in accord with plan schedules, routes, and equipment. Monitor is continuously on.
4. Fixed/portable monitoring is flexible enough to locate leaks which may not be ascertainable by visual inspection.
5. Identifies leaks not ascertainable by visual inspection.
6. Far less costly than identification of each flange, valve, etc. and in record keeping.
7. Leak definition is probably more stringent.
8. Record keeping and reporting is more efficient and cost effective.

SPECIFIC CONCERNS

1. Definition of a leak; 500 ppm exemption (once/yr. monit.) 10,000 ppm at point of measurement (weekly monit.) and equipment standards provide little justification on an ambient basis or on an annual emission basis. We assert that the current plans contain definitions more readily relatable--using dispersion methodology--to the 10 ppm exhaust emission standard than the arbitrary number posed by VHAP. Moreover most fixed systems are calibrated at the OSHA 0.5-1.0 ppm VCM levels, and are thus much more sensitive to leaks.
2. VHAP overlooks sources covered by NESHAPS plans. Specifically, leakage from reactor agitator seals or from non-flange piping areas, not considered by VHAP, is picked up by the combination of fixed and portable monitoring provided by the NESHAPS leak detection and elimination plans.

3. VHAP portable monitoring for pumps appears to be "triggered" by visual observation of a leak; e.g. drips. VCM pumps may leak vapor which is not necessarily visible, but is readily detectable by fixed or portable monitoring systems.
4. Most PVC/VCM producers use the HNu portable monitoring equipment which has an upper limit of 2,000 ppm. The 10,000+ ppm level would require either rearranging existing units or purchase of new modified units.
5. Repair response time provisions of VHAP are more liberal than many PVC/VCM leak detection and elimination programs. These are logged on most producers' report sheets. Most units have leak logs and repair logs kept by operations.
6. Exception reporting (or merely record keeping) is preferable from a manpower efficiency viewpoint. The VHAP detailed reporting requirements, i.e. every reading, is unduly burdensome and provides the regulator nothing more to enforce. Indeed, the continuous charts of the fixed monitors run miles of paper for every "spike" of concentration.
7. Identifying, tagging and record keeping for each valve, flange and related equipment in VCM service is an enormous undertaking. We conservatively estimate that several thousand such points exist in a typical plant. Yet the same typical plant is carefully monitored to detect leaks from these potential sources and more, without specifying individual points to measure with a probe.
8. VHAP would allow the patrol to shut off the VHAP portable monitor between points. NESHAPS "L,D,& E" plans would not. Thus the NESHAPS plans are far more flexible and capable of continuous monitoring on patrol. An entire process area is monitored at low levels (high sensitivity) rather than a point, or group of points.
9. Certain parts of VHAP contain no schedule for portable monitoring. Most NESHAPS "L,D,& E" plans do. Many cover all VCM-service equipment weekly.
10. There is a serious question whether VHAP (Subpart V) was promulgated subject to clear Public Notice. Since it is buried at the end of benzene rules, and the initial proposal did not contain Subpart V, an argument can be made that the public notice provisions of the Clean Air Act have not been observed.

IV. CONCLUSION: The Vinyl Institute recommends that USEPA, if it retains VHAP as currently published, allow PVC/VCM producers to elect to follow current NESHAPS plans or change to VHAP "L,D,& E" programs.

If the choice proposal above cannot be approved by USEPA, the Vinyl Institute would propose simply that the current NESHAPS rules be continued as written and a PVC/VCM exemption to VHAP be promulgated.

INCINERATION BYPASS HISTORY

VCM PLANTS

<u>PLANT</u>	<u>BYPASS HOURS</u>	<u>% BYPASS TIME</u>	<u>NO. OF BYPASSES</u>	<u>AVG. LBS. PER BYPASS</u>
1	75.	0.9	360	40
2	0.5	0.1	3	22
3	110.*	1.25	40	NA
4	16.	0.2	40	4
5	15.	0.2	1	NA
6	49.5	0.53	NA	NA
7	0.5*	0.1	NA	NA
8	NA	NA	286	4

* Some bypasses vented to a flare

NA = Not Available