

November 18, 1986

Mr. Jerry Banks, P.E.
North Air Emissions Section
Mississippi Department of Natural Resources
Bureau of Pollution Control
P. O. Box 10385
Jackson, MS 39209

VISTA

Dear Mr. Banks:

In our October 29, 1986 meeting, we discussed an emergency relief valve discharge which occurred June 27, 1986, and a leak which occurred August 8, 1986. This letter provides information as to why both these instances are not violations of the National Emission Standards for Hazardous Air Pollutants: Vinyl Chloride (NESHAP).

The June 27, 1986 release was from the fresh VCM receiver in reactor module number two. The details of this incident are provided in Mr. R. A. Frohreich's letter to you dated July 3, 1986.

In our meeting, you asked us to provide data comparing the frequency of relief valve discharges at our plant compared to that of the PVC industry in general. The EPA conducted a review study of relief valve discharges experienced by PVC plants prior to issuing the proposed rule to the NESHAP on January 9, 1985. The results of this study are summarized in the preamble to the proposed rule beginning on page 1186 of the Wednesday, January 9, 1985, Volume 50 No. 6, Federal Register. A copy of the preamble and the proposed rule are attached.

In the study the EPA first evaluated and then visited five PVC plants which were intended to represent plants with good relief valve discharge records. The preamble states, "In general, the EPA's evaluation of these plants indicates that each has adopted the combination of equipment, operational procedures, and attitude toward prevention of relief valve discharges intended by the current standard, and that their resulting performance is consistent with compliance with the current standard. The EPA's evaluation found that a few discharges may continue to occur from some plants that comply with the standard. This observation is consistent with the expectation held by EPA when the standard was written."

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In their evaluation study, the EPA separated relief valve discharge performance data by source (reactor vs. non-reactor) and by resin type. Based on the performance of the five plants with good relief valve discharge records, the EPA determined numerical limits to show compliance with the relief valve discharge standard. The EPA determined that a suspension PVC resin plant would be in compliance with the relief valve discharge standard if reactor relief valve discharges did not exceed 0.035 discharges per 100 batches and if non-reactor relief valve discharges did not exceed 0.025 discharges per 100 batches. The performance of our plant since 1980 is shown below:

<u>Year</u>	<u>Number of Batches</u>	<u>Number of Relief Valve Discharges</u>		<u>Frequency Discharges Per 100 Batches</u>	
		<u>Reactor</u>	<u>Non-Reactor</u>	<u>Reactor</u>	<u>Non-Reactor</u>
1980	6540	1	2	0.015	0.030
1981	6527	0	3	0	0.046
1982	7576	1	2	0.013	0.026
1983	8894	2	0	0.022	0
1984	8948	0	0	0	0
1985	10,213	0	0	0	0
1986 ⁽¹⁾	8693	<u>0</u>	<u>1</u>	<u>0</u>	<u>0.012</u>
TOTAL	57,301	4	8	0.007	0.014

This tabulation illustrates the effectiveness of the programs implemented in the plant to prevent relief valve discharges. The one relief valve discharge in the last three years is a very significant reduction from the eight relief valve discharges the three previous years. Our frequency for the total period of 0.007 reactor relief valve discharges per 100 batches is much less than the numerical limit of 0.035 established by the EPA. Also our frequency for the total period of 0.014 non-reactor relief valve discharges per 100 batches is much less than the numerical limit of 0.025 established by the EPA. During the last three years, our frequency for reactor relief valve discharges is zero and for non-reactor relief valve discharges is 0.004. These frequencies are dramatically less than the frequencies established by EPA to demonstrate compliance with the relief valve standard.

(1) January 1 to November 1.

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In document EPA-450/3-86-004⁽²⁾ on page 2-15, the EPA's response to a comment concerning redundant instrumentation preventative measures was "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". The June 27 emergency relief valve discharge did occur from a vessel with redundant level instrumentation.

The June 27 emergency relief valve discharge is not a violation of the NESHAP because the plant has taken the following measures to prevent relief valve discharges:

1. Operating Procedures
2. Operator Training
3. Redundant Instrumentation
4. Strong Attitude Towards Preventing Relief Valve Discharges

These are the preventative measures the EPA deems essential to having a good relief valve discharge record. These procedures and attitudes at the plant are very effective in the prevention of relief valve discharges as shown by the historical data presented in the above table. This emergency relief valve discharge does not violate the standard because the plant has taken all appropriate preventative measures and the frequency of relief valve discharges at the plant is much less than the EPA expected for plants to be in compliance when the standard was written.

The leak on August 8, 1986, occurred after charging an experimental batch in reactor 742. The details of this incident are provided in Mr. R. A. Frohreich's letter to you dated August 14, 1986.

In the September 30, 1986, revisions to the NESHAP a leak is defined as follows:

- (w) "Leak" means any of several events that indicate interruption of confinement of vinyl chloride within process equipment. Leaks include events regulated under Subpart V of this part such as: (1) An instrument reading of 10,000 ppm or greater measure according to Method 21 [see Appendix A of 40 CFR Part 60]; (2) indications of liquid dripping; (3) a sensor detection of failure of a seal system, failure of a barrier fluid system, or both; and (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]. Leaks also include events regulated under § 61.65 (b)(8)(1) for detection of ambient concentrations in excess of background concentration. A relief valve discharge is not a leak.

- (2) Vinyl Chloride Standards: Responses to Comments on January 1985 Proposed Revisions, September 1976.

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The August event occurred because of the unintentional interruption of confinement of vinyl chloride within process equipment. The leak occurred due to the momentary unexpected opening of the colloid valve on 742 reactor which was immediately closed by the panel operator. The emissions were detected by the fixed point monitoring system portion of the plant's Leak Detection and Elimination Plan. Changes were made to the programmable controls before the next batch was charged to prevent a recurrence of this unusual, unanticipated incident.

This event was a leak and thus not a violation of the NESHA because:

1. The emissions resulted from the interruption of the confinement of vinyl chloride in process equipment.
2. The emissions were detected by the fixed point monitoring system.
3. Corrective action by the panel operator to stop the leak and the modification to the programmable controller to prevent a recurrence meets the requirements of the Leak Detection Elimination Plan to repair leaks.

Sincerely,

R. A. Frohreich

R. A. Frohreich
Director of Environmental Control

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attachment

cc: JF, JWW, VEM, WLM, JCL, H. J. Neeld