



NATIONAL TRANSPORTATION SAFETY BOARD
Investigative Hearing

Norfolk Southern Railway general merchandise freight train 32N
derailment with subsequent hazardous material release and fires,
in East Palestine, Ohio, on February 3, 2023

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| EXHIBIT | |
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Agency / Organization

Oxy Vinyls, LP

Title

**Oxy Vinyls Email to NTSB, Temperature and
Pressure Data, Polymerization, April 14, 2023**



14555 Dallas Parkway, Suite 400
Dallas, Texas 75254-4300
Phone 972.404.3800

April 14, 2023

VIA NTSB FILE MANAGER

Mr. Ruben Payan
Investigator-In-Charge
National Transportation Safety Board
490 L'Enfant Plaza East, SW
Washington, DC 20594

RE: Norfolk Southern Train Derailment, East Palestine, Ohio (NTSB Investigation No. RRD23MR005)

Dear Mr. Payan:

I am writing on behalf of Oxy Vinyls, L.P. ("Oxy Vinyls" or "Company"), in connection with the above-referenced investigation by the National Transportation Safety Board ("NTSB").

As the NTSB is aware, Oxy Vinyls only recently became a party to the NTSB investigation. We have not had the benefit of participating in the vast majority of party and witness interviews. In addition, our ability to review information contained in the NTSB's electronic database has been impacted by access issues that have only recently been remedied. Based on the information that the Company has reviewed to date, we wanted to call several issues to the attention of the NTSB.

Temperature and Pressure Data

It is our understanding that the emergency response contractors retained by the Norfolk Southern Corporation ("NS") (*i.e.*, Specialized Professional Services, Inc. ("SPSI") and/or Specialized Response Solutions ("SRS")) were measuring the temperatures and pressures of the railcars carrying stabilized vinyl chloride monomer ("VCM") as part of the response to the derailment. It does not appear, however, that records of these readings are available in the NTSB's database for this investigation.

In our experience, critical data of this type, obtained as part of the response to a major incident, would be recorded or written down so trends over time could be ascertained. We also would expect such documentation to be maintained as part of the written records of the emergency response to the incident.¹

¹ We also note that the NS Incident Status Report from February 5, 2023 – the day prior to the Vent and Burn Operation – does not appear to have been uploaded to the NTSB's database. This document may contain information regarding the incident response that is relevant to the investigation.



Mr. Ruben Payan
April 14, 2023
Page 2

We urge the NTSB to continue its efforts to obtain rail car temperature and pressure data from the NS, SPSI, and SRS. The missing Incident Status Report should also be located and produced. In the absence of this information, we consider it unlikely that the investigation will be able to result in credible findings regarding the post-incident conditions experienced by the stabilized VCM rail cars.

Group Chair Field Notes

We have reviewed the Hazardous Materials Group Chair Field Notes, dated February 5, 2023. Based on our review of this document, we are concerned that there is a misunderstanding regarding the significance of the temperature of 185 degrees Fahrenheit ("° F"). Statements in the Field Notes suggest that this temperature is a critical temperature with respect to the initiation of a polymerization reaction. Such statements are incorrect.

The vapor pressure curve for VCM defines the relationship between pressure exerted by a pure component chemical as a vapor and its temperature. The VCM railcars involved in the incident were equipped with pressure relief devices having a set point of 247.5 psig. The pressure relief device ("PRD") will start to discharge when the internal pressure of the railcar exceeds the specified relief pressure.

Using the vapor pressure curve, it is possible to calculate the corresponding temperature exhibited by the contents of the railcar when the relieving pressure is reached (*i.e.*, at 247.5 psig, the saturated equilibrium temperature is about 190° F). Achieving this temperature is not an indicator of polymerization. It is simply the temperature at which the vapor pressure of VCM would coincide with the pressure specified for the PRD to activate.

Additionally, we note that any assumption that the activation of a PRD is an indication of polymerization is incorrect, certainly absent further information. Several of the railcars in question were exposed for many hours to an ongoing pool fire resulting in temperature and pressure increases sufficient to activate a PRD. The mere fact that a PRD activated is not an indication of polymerization.

Premature Conclusions Regarding Polymerization

Based on limited information learned to date, we are concerned some of the participating parties may have already concluded the contents of one or more of the railcars carrying stabilized VCM were undergoing a polymerization reaction after the derailment. Oxy Vinyls does not believe that the evidence confirms such a determination, and we caution against a premature conclusion regarding polymerization.



Mr. Ruben Payan

April 14, 2023

Page 3

As representatives of the Company have discussed with the NTSB, stabilized VCM (*i.e.*, pure VCM with less than 200 parts per million of oxygen) will not undergo runaway polymerization reactions capable of impacting relief devices or damaging vessels in a low oxygen environment at any temperature. *See* Email from Steve M. Smith to Paul Stancil, dated March 10, 2023.

Runaway polymerization reactions are highly exothermic and would be marked by a rapid, significant, and sustained increase in temperature and pressure. Based on the information available to Oxy Vinyls to date, the VCM railcars did not exhibit these conditions, and we have seen no information that would confirm that runaway polymerization was taking place.

* * *

We appreciate the opportunity to participate in the NTSB investigation. If you have any questions, please let me know.

Sincerely,

A black rectangular redaction box covering the signature of Karenanne Stegmann.

Karenanne Stegmann

cc. Marc Dougherty
Paul Stancil