

**NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C. 20594**

**Hazardous Materials Factual Addendum**

October 12, 2005  
DCA-05-MR-008

**A. Incident Identification**

Location:	Graniteville, South Carolina
Date and Time:	January 6, 2005; 2:40 a.m.
Hazardous Materials:	Chlorine
Carrier:	Norfolk Southern Railway Company
Shipper:	Olin Chlor Alkali Products
Transportation Mode:	Rail

**B. Additions or Corrections to Factual Report**

After the September 28, 2005 Technical Review of the group factual reports Olin provided information correcting the temperature of the chlorine at the recorded fill pressure of 22 psig. Olin's new information shows that the chlorine temperature at the time the tank was filled was about 12 ° F. (See Appendix 1.) This correction required a recalculation of the estimated temperature of the chlorine in the tank at the time of the derailment. That estimated temperature was now calculated to be 26 ° F. (See Appendix 3.)

Just before the Technical Review representatives from Norfolk Southern asked to change the amount of chlorine that remained in the punctured tank car (UTLX 900270) immediately after the derailment from 1/3 to 1/2 the total amount loaded into it. At the technical review Norfolk Southern provided copies of notes taken on scene by a Hulcher contract emergency responder. Those notes had recorded "± 44 ton CL<sub>2</sub> in holed" at midnight between January 8<sup>th</sup> and 9<sup>th</sup>. A board investigator asked the emergency responder to describe how the amount of chlorine remaining in the punctured tank was determined. He stated that he took a measurement of the height of liquid remaining in the tank and provided that height to an Olin employee working with him on scene. He stated that the Olin employee calculated the amount and told him that 44 tons of chlorine was still in the tank. He recorded this in his notes. He had no written record or memory of the measurement of the height of liquid he provided. (See Appendix 2.)

The board investigator contacted the Olin employee who reportedly made those calculations. The employee does not recall receiving that measurement or making those calculations. He recalled using the estimate of 1/3 in planning for the procurement of materials needed to handle the remaining product. He also noted that he back calculated the height of the liquid in the tank using 44 tons, which would have resulted in a height of 42 inches or nearly half the diameter of the tank. The Olin employee stated that he has seen

photographs taken as the original measurement was made and is fairly certain that the level indicated in the photograph is well below the midline of the tank. He also noted that another photograph taken at the same time showed the original location of the puncture and its lowest point, the point at which liquid chlorine might spill from the tank, was at the same level as the liquid level indicated in the other photograph. (See Appendix 1. & Hazardous Materials Group Factual Report, Appendix I – UTLX 900270 photos: Puncture from A- end & Liquid Chlorine Level Estimate.)

Appendix 4 contains a revised Norfolk Southern Timeline. This timeline should replace document 122 H, titled *Haz/Mat Appx O – NS Timeline*. The revised document does not change the narrative in the Hazardous Materials Group Factual Report.

~~James E. Henderson~~

James E. Henderson  
Hazardous Materials Group Chairman

## **LIST OF APPENDICES**

1. Olin Information
2. Norfolk Southern Information
3. Revised Chlorine Temperature Estimate Chart
4. Revised Norfolk Southern Timeline