

Appendix 1
Hazardous Materials Group Factual
10/7/05 Addendum
Olin Information

Henderson James

From: Hall, Rick CHAS [REDACTED]
Sent: Monday, October 03, 2005 2:08 PM
To: Henderson James
Subject: Graniteville Chlorine Loading Temperature

Jim, I was looking back through the Hazmat and metallurgy reports and noted an error on this temperature. I did not retain a copy of my previous message to you. I either gave you the wrong temperature or an error was made on your end. The pressure from the loading sheets was 22 psig which sets the temperature according to the vapor-liquid equilibrium relationship. 22 psig translates to 12 degrees F. I will fax you a copy of the equilibrium graph that I used for reference. This data is available in many standard chemical references.

Rick Hall
Director of Responsible Care
Olin Chlor Alkali Products
Phone [REDACTED]
Fax (423) 336-4592
[REDACTED]

10/06/2005

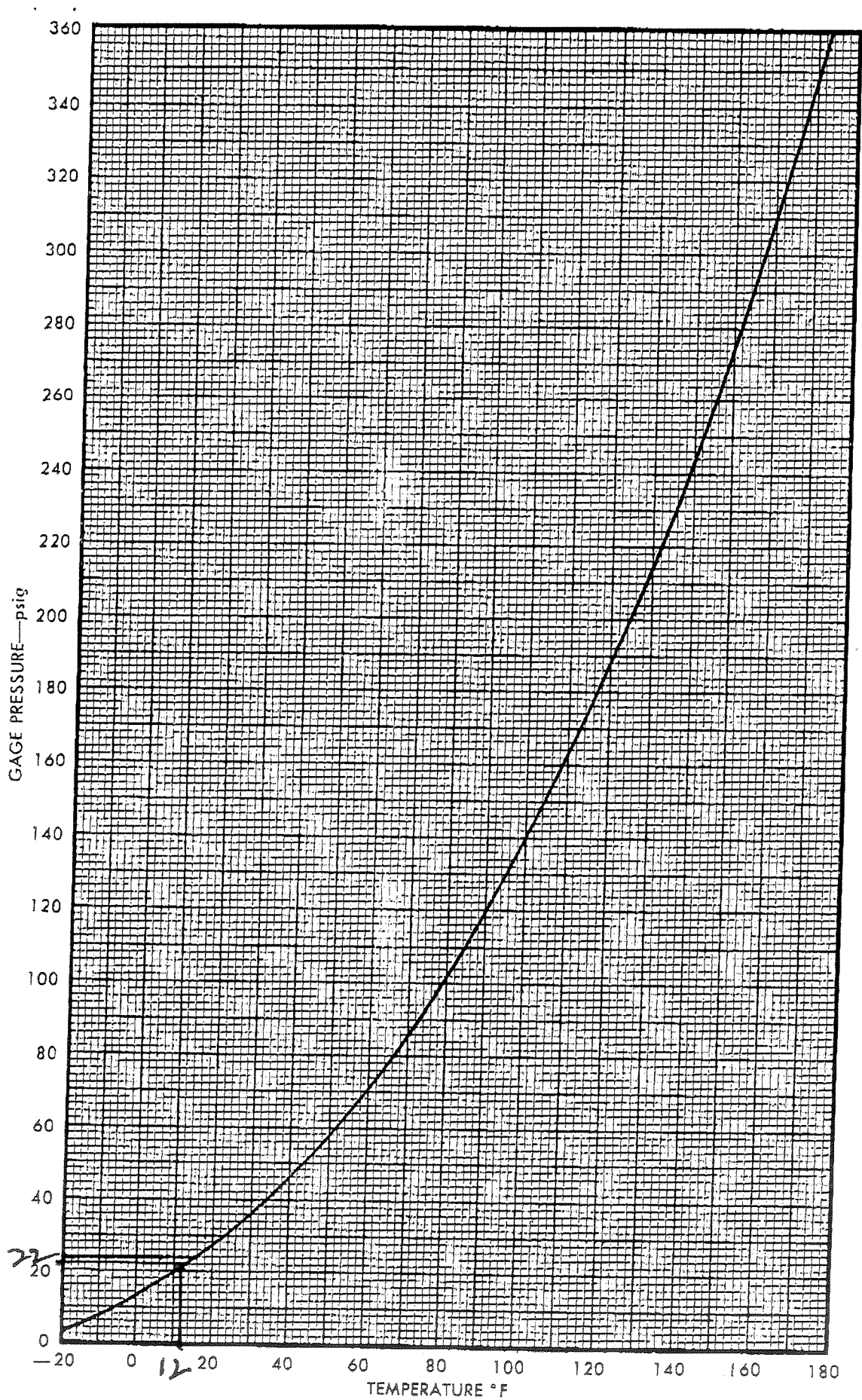


Chart V. Vapor pressure of saturated chlorine Ref. 4.

Henderson James

From: Hall, Rick CHAS [REDACTED]
Sent: Friday, September 23, 2005 1:24 PM
To: Henderson James
Cc: Fleming, Bruce CLEV; Williams, Paul B

Jim, I did not forward the pictures Bruce references below as previous attempts to send files of this sort to you electronically failed. You should have those and we discussed the initial liquid estimate photo on the phone. I understand that NS has given you an estimate of 1/2 remaining at the time recovery began versus the 1/3 that I previously gave you based on Olin's field observation and review of the pictures.

As I communicated by phone, we did not calculate the recovered chlorine in the residual bleach and salt products from the neutralization process, though we have the data. The bleach was rapidly and partially decomposing to salt during the reaction. Aside from salt in solution some salt undoubtedly precipitated out leaving a material that was qualitatively characterized for handling and disposition purposes. However, to calculate the chlorine reacted based on the solution analysis in a non-homogeneous mixture would imply greater accuracy than exists. The visual pictorial evidence indicating the real time observation is in my opinion the more definitive evidence for quantity estimation.

We can discuss this further at the technical review next week if you like.

Rick Hall
Olin Chlor Alkali Products

-----Original Message-----

From: Fleming, Bruce CLEV
Sent: Friday, September 23, 2005 12:18 PM
To: Hall, Rick CHAS
Subject: RE: Emailing: On Scene crack from A-end

This is an estimate since the pictures do not clearly show the complete top-to-bottom side view or end view of the car - but, using the attached pictures, I measured and estimated and I get about/maybe 28-30" up to the estimated liquid level. This equates to about 4,100 gallons, or 25 tons of chlorine.

Bruce

NATIONAL TRANSPORTATION SAFETY BOARD
Office of Railroad, Pipeline, and Hazardous Materials Investigations

ORAL INTERVIEW

Person Conducting Interview:

Name James E. Henderson
Code RPH
Title Haz. Mat. Accident Inv.

Place of Interview:

Washington, DC
to
Cleveland, TN

Date:

10/5/05

Type of Interview:

☒ Telephone ☐ Personal

Location of Interview: (Check one)

☒ Office ☐ Field

Name of Person Interviewed:

Bruce Fleming

Title:

Transportation Equipment Manager

Name and Address of Firm:

Olin Alkali Products
Cleveland, TN

Type of Operation:

Chemical formulator and shipper

(Statements are paraphrased)

He stated that he worked closely with Chip Day on the Graniteville accident site. They were putting in long hours and tired but he does not recall Chip giving him a height measurement for the amount of chlorine still in the ruptured tank car. They were working with an estimate of 1/3 of the tank or about 30 tons of chlorine to determine how long it would take to remove and process it. When asked if he remembered a figure of 44 tons he said that he did not.

Back calculating the height using a figure of 44 tons would put the liquid level at 42 inches. That is slightly below the midline of this tank car. He has been asked how much material was in the ruptured tank car several times since the accident and his best estimate comes from a photograph where a person is indicating a point well below the midline of the tank on the sidewall. This photo was provided to him saying that the person in the photo was pointing to the liquid level. That level seems to be below the frost line but that is expected and it appears to be near the bottom of the puncture comparing it to a separate photo of the puncture; which is reasonable. That level was used to estimate that 1/3 of the chlorine was still in the tank. However, the photo was not taken far enough back to see the top of the tank so he cannot be sure. Also he believed that this tank was at an angle with the left side lower; which would make calculations difficult.