



U.S. Department of Transportation
**Pipeline and Hazardous Materials
Safety Administration**

1200 New Jersey Ave, S.E.
Washington, D.C. 20590

JUL 08 2009

Mr. Robert A. Stewart
UPS Component Shop Supervisor
UPS Hydrostatic Shop
UPS Aircraft Maintenance Hangar
750 Grade Lane
Louisville, KY 40213

Reference No. 07-0077

Dear Mr. Stewart:

This is in further reference to your follow-up letters inquiring about the cylinder requalification requirements contained in § 180.205 of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you ask about the methods used to calibrate the pressure test system. I apologize for the delay in responding.

Your questions are paraphrased and answered below:

Q1. What tolerances apply to permanent expansion of a calibrated cylinder?

A1. None. 49 CFR § 180.205, paragraph (g)(3) requires a cylinder requalifier to use a calibrated cylinder or other method authorized in writing by the Associate Administrator for Hazardous Materials Safety to verify the accuracy of a hydrostatic retest system, including both the Pressure Indicating Device and the Expansion Indicating Device (EID). Paragraph (g)(4) specifies that the calibrated cylinder must show “no permanent expansion.” This is a separate requirement and is not related to the test equipment $\pm 1.0\%$ accuracy requirement. Thus, the HMR do not specify a tolerance in the determination of permanent expansion of a calibrated cylinder when used to demonstrate the accuracy of a retest system. Any permanent expansion may indicate entrapment of air or other malfunction of the equipment.

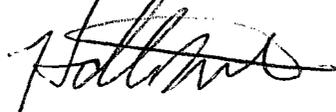
Q2. Does the requirement that the calibrated cylinder show no permanent expansion hold a requalifier who utilizes digital equipment, which measures expansion to a high degree of resolution, to a different standard than a requalifier who utilizes less sophisticated methods?

A2. The requirement is the same regardless of the type of equipment used. The calibrated cylinder must show “no permanent expansion.” This means that the water level in the burette or the weigh bowl must return to the same point where it began – not slightly higher or

lower. Rounding is not permitted when determining whether the calibrated cylinder has shown permanent expansion. After depressurization of the calibrated cylinder, all of the displaced water must return to the water jacket. Any volume of water measured in the EID above zero (or the original reading) indicates permanent expansion of the calibrated cylinder. If this occurs, the equipment has not been proven to be accurate in accordance with the HMR.

I hope this information is helpful. Please contact us if you have additional questions.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Hattie L. Mitchell", written in a cursive style.

Hattie L. Mitchell
Chief, Regulatory Review and Reinvention
Office of Hazardous Materials Standards

April 6, 2007

Office of Hazardous Materials Standards
Regulatory Review and Reinvention
Hattie Mitchell, Chief
400 7th St., S.W.
Washington, DC 20590

Ref. No.: 07-0059

Mitchell
§180.205(g)
Cylinders
07-0077

Dear Ms. Mitchell,

Thank you for your response to question #1 (Ref. No.: 07-0059) dated March 30, 2007. However; United Parcel Service Co. (UPS) is still awaiting your response to question #2 and question #3. Please provide this information as soon as possible. Operators within the industry utilizing similar high quality electronic precision test systems, and not the less accurate burette tubes, are also awaiting this response. The electronic precision test systems are capable of reading to 0.1 cubic centimeters (cc) through its full range

Questions:

2. If the EID is allowed $\pm 1.0\%$ accuracy, and the Calibrated cylinder is used to prove this accuracy ($\pm 1.0\%$ of the total expansion value of the Calibrated Cylinder), then according to 49 CFR 180.205 paragraph (g)(3)(ii) and 49 CFR 180.205 paragraphs (g)(4), what are the tolerance requirements of the device that do not pertain to certain readings (i.e. the permanent expansion reading of the calibrated cylinder).
3. According to 180.205(g)(2) and (3), the EID is required to have a readability to within 1% of the Total Expansion, and an accuracy of $\pm 1.0\%$ of the Total Expansion. However, according to your letter, the EID must show zero (0cc) permanent expansion, in other words $\pm 0.0\%$ tolerance. Please answer the following questions specifically and explain your answers:
 - a. How can we be held to an accuracy and readability requirement that is higher than the device, itself, is required to have? (i.e. 0.0cc Permanent Expansion reading for a device that is allowed $\pm 1.0\%$ deviation.)
 - b. Why are we being penalized for using higher quality equipment? These readings would not even be seen on a system using a burette. On a burette type machine, the increments would be 0.5cc, and the operator would record 0.0cc for anything less than 0.5cc. It is only because we have invested in higher quality, digital equipment that these readings can even be detected. These readings are smaller than the required resolution and accuracy requirements of the device, and would never be seen on the old burette type equipment. This lack of understanding of technical specifications for resolution and accuracy by PHMSA is penalizing users who invest in higher quality equipment. If our machine was capable of reading in 0.001cc increments, would you penalize us for 0.001cc deviations? How far are you going to take this foolishness?

The responses to these questions are very important and beneficial to our ultimate decision whether to request a Formal Administrative Hearing for the Notice of the Probable Violations on PHMSA Case No. 06-0257-CRS-CE. Once again, I am requesting the Probable Violations on PHMSA Case No. 06-0257-CRS-CE be dismissed given the ambiguity and disparate treatment under the regulations and the corrective actions already taken by UPS.

I hope we can resolve this matter without having to request a Formal Administrative Hearing in accordance with 49 CFR 107.319.

Best Regards



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