



U.S. Department
of Transportation

Pipeline and Hazardous
Materials Safety
Administration

1200 New Jersey Avenue, SE
Washington, D.C. 20590

DEC 12 2012

Mr. W.A. Andrews
Vice President
Georgia Fire Protection
2090 Tucker Industrial Road, Suite A-6
Tucker, Georgia 30084

Ref. No. 12-0176

Dear Mr. Andrews:

This responds to your July 30, 2012 letter and September 11, 2012 email requesting further clarification of your May 25, 2012 letter of clarification under Ref. No. 12-0129 on requalification of cylinders under the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180). Specifically, you request clarification of when a cylinder may be retested under § 180.205(g)(5) due to equipment failure that results in a failed outcome. In your email and May 25 letter, you describe two types of failure scenarios that led to your request: 1) during a test of a 3AA cylinder, the test equipment failed to transfer volume from the jacket to the weight indicating device leading to the device showing minimal or no increase in weight, which results in either an aborted test or a failure at 100% expansion; and 2) during a test of a 3AL cylinder, the test adapter to the cylinder had an O-ring failure resulting in a greater than 10% permanent expansion reading. During both of these scenarios your technician became aware of the test equipment failure that you believe accounted for an erroneous permanent expansion reading.

You explain further that your company uses computerized test equipment that performs and records the test and results. Moreover, you provide information from the manufacturer of this equipment that corroborates your conclusion of equipment failure. Finally, you also provide the cylinder test result reports associated with these scenarios for our reference.

In accordance with § 180.205(g)(3) of the HMR, the retester must confirm test equipment is properly functioning before the onset of any retesting. This accuracy check of the testing system, as well as adherence to any manufacturer maintenance recommendations, is designed to make a retester aware of any testing system problem(s) prior to the onset of pressure testing. Also, in accordance with § 180.205(g)(5), a retester may perform a system check at or below 90% of the test pressure prior to a retest to look at the testing system and cylinder for any leaks. However, we understand that test equipment can and

will occasionally fail during performance of a cylinder pressure test. Your questions are paraphrased and answered as follows:

Q1. Does § 180.205(i)(1)(iv) require condemnation of the 3AA cylinder in scenario 1 or does the test equipment failure invalidate the first attempt results and allow a retest under § 180.205(g)(5)?

A1. As previously stated in our response under Ref. No. 12-0129, in the case of a malfunction of the test equipment during a full retest (above 90% of the test pressure), performance of a repeat test is authorized in accordance with § 180.205(g)(5). However, a cylinder required to be condemned under § 180.205(i) is not authorized for retesting. Section 180.205(i)(1)(iv) refers to condemnation of a DOT specification cylinder experiencing permanent expansion exceeding 10% of total expansion under proper test conditions. The cylinder does not have to be condemned if it can be substantiated that the test equipment failure led to a false reading. Note that the reason for this repeat test must be included on the test record in accordance with § 180.215(b)(2). The repeat test must be performed at a pressure increased by 10% or 100 psig, whichever is less. Because of the unique circumstance of the equipment malfunction, we recommend recalibrating the test equipment before conducting the repeat test. Also, we recommend performance of a system check at or below 90% of test pressure prior to the repeat test to ensure the system is functioning properly. Finally, we caution that at no time should a cylinder retest exceed 110% of the minimum test pressure. If a cylinder is pressurized to more than 110% of the minimum test pressure, it may cause embrittlement of the cylinder's sidewall which could result in failure of the cylinder in service.

Q2. Does § 180.205(i)(1)(iv) require the condemnation of the 3AL cylinder in scenario 2 or does the test equipment failure invalidate the first attempt results and allow a retest under § 180.205(g)(5)?

A2. See A1.

I hope this answers your inquiry and clarifies our previous response. If you need additional assistance, please contact this office at (202) 366-8553.

Sincerely,



Robert Benedict
Chief, Standards Development Branch
Standards and Rulemaking Division

Georgia
Fire Protection



Boothe
§ 180.205
Cylinders
12-0176

July 30, 2012

US DOT
PHMSA Office of Hazardous Materials Standards
Attn: Robert Benedict, Chief, Standards Development Branch
Standards and Marking Division
1200 New Jersey Ave. SE
Washington, DC 20590 0001

Ref No. 12-0129

Dear Mr. Benedict:

I find myself in the unenviable position of requesting a clarification of your clarification letter dated July 19, 2012. Your clarification letter would appear to say that a retest is allowed and is in order. The South East Region's interpretation appears to say that under 180.205(i)(iv), we are not allowed to retest the cylinders because the first test results showed a permanent expansion of greater than 10%.

I will try to ask the question as specifically as possible.

On both Example 1 and 2, the pressure test was performed by an automated, computer directed test method. The computer records the test results as an aborted, failed or passed indication. In Example 1, the computer aborted the test but recorded a 100% permanent expansion reading. In Example 2, the computer failed the test and recorded a greater than 10% permanent expansion reading.

During both of the tests our technician became aware of a test equipment failure that accounted for the erroneous permanent expansion readings that were recorded.

Your letter appears to agree that the observed test equipment failure would allow a retest under 180.205(g)(5).

However under 180.205(i), both of these cylinders recorded a permanent expansion reading of greater than 10% during the first defective test attempt.

The question is: Does 180.205(i)(iv) require the condemnation of both cylinders or does the test equipment failure invalidate the first attempt results and allow a prescribed retest under 180.205(g)(5)?

Your assistance is greatly appreciated.

W.A. Andrews
Vice – President

Der Kinderen
§ 180.205
Cylinders
12-0205

Drakeford, Carolyn (PHMSA)

From: Billings, Delmer (PHMSA)
Sent: Tuesday, September 11, 2012 2:01 PM
To: Drakeford, Carolyn (PHMSA)
Cc: Betts, Charles (PHMSA)
Subject: FW: Retesting restrictions
Attachments: Attachment A.pdf; Attachment B.pdf; Attachment C.pdf

Carolyn,

Please log into Filemaker and assign for response.

Thanks.

Del

From: Betts, Charles (PHMSA)
Sent: Tuesday, September 11, 2012 1:33 PM
To: Billings, Delmer (PHMSA)
Subject: Fw: Retesting restrictions

Fyi

From: Woody Andrews [<mailto:wandrews@georgiafire.net>]
Sent: Tuesday, September 11, 2012 09:42 AM
To: Betts, Charles (PHMSA)
Subject: Retesting restrictions

United States Department of Transportation
Standards Development
Attn: Charles Betts

Mr Betts,

We would like to request a clarification as to when a cylinder may be retested under 180.205(g)(5) due to equipment failure that results in a recorded failed outcome. Does equipment failure invalidate the results of the initial test or is the retest prohibited under 180.205(i)(1)(iv) (specifically, permanent expansion greater than 10%) due to the recorded results of the initial test?

We have performed retests on cylinders that on the first test attempt have been pressurized to more than 90% of test pressure and we have experienced equipment failure. The question is does the first recorded permanent expansion reading of greater than 10% prevent us from performing the retest?

Background.

We operate a Galiso REC4 computerized test machine that performs and records the test function and results automatically.

There have been two types of failures that created this delima.

Example #1: On a 3AA1800 cylinder at an achieved pressure of 3019 psi, during the test the test equipment fails to transfer volume from the jacket to the weight indicating device, the weight indicating device does not show or shows a minimal increase in weight, at the end of the test the weight indicating device shows the same weight. The test is either aborted by the test equipment or fails at 100% permanent expansion.

Attachment A. sample of results of test and data. (items #8 and 9)

Attachment B. letter from manufacturer confirming test equipment failure.

Example #2: A cylinder reaches 90%+ of test pressure during an initial test but has a test adapter to cylinder o ring failure during the test resulting in a greater than 10% permanent expansion reading, is a retest allowed on this cylinder when the o-ring defect is apparent or does 180.205(i)preclude the retest.

Attachment C. sample of results of test and data. (items #29 and 30)

Our reasoning is:

The results of the first test are invalid because of the equipment failure and the greater than 10% results do not preclude a retest.

Under the first example it is obvious to us that a cylinder cannot fail at 100% expansion and then pass a retest at 2.9% without the first set of results being invalid.

Under the second example the leakage inside the jacket prevented a correct reading of the volume returned to the jacket. The retest results show a total expansion number and permanent expansion results expected of a 3AA cylinder.

Thank you for your consideration,

Woody Andrews

Georgia Fire Protection

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