Appendix A

NIST Handbook 44 – Scales

Item: 320-2:

UR.2.4. Foundations, Supports, and Clearance
1 System design and why we don’t need rail cuts for weighing

MULTIRAIL LEGALWEIGHT DESIGN

MULTIRAIL measuring area

MULTIRAIL weighing electronics

Signal contacts

User EDP

Scale PC

Form pil.
FORCE SUMMATION – HOW WE REPLACE THE RAIL CUT

Weighing tie

Measuring eye replaces the rail cut

Forces at weighing ties

Forces at measuring eyes = 100% of the shunt force
Total force

ADJUSTING SENSITIVITY OF MEAS. EYES

This adjustment has to be done once after installation. It is to determine the sensitivity of the installed measuring eyes. This value is independent from temperature, force and others. The values for the WDI's remain; they are precalibrated during manufacturing.

we make processes work
LEGAL WEIGHT - GLOBAL INSTALLATIONS

Global Installations

300 installations worldwide

Measuring eyes after installation

we make processes work
THE WEIGHING TIE

we make processes work

2 Successful testing and changes needed to handbook

we make processes work
SUCCESSFUL TESTING

- In September 2013 we tested the system at the TTCl in Pueblo to NTEP HB44 guidelines
- We passed all testing both statically and dynamically
- Dynamic was tested to 14mph
- All testing was completed and witnessed by NTEP (Gipsa)
- System has now been tested to all existing HB 44 tolerances and specifications

SUCCESSFUL US INSTALLATION

- A system was installed in December 2013 and commissioned in Jan 2014 in the USA.
- A very large system with 28 measuring ties (4x7 for liquid weighing)

<table>
<thead>
<tr>
<th>Weighments</th>
<th>Tonnage (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;9500 cars weighed</td>
<td>&gt;1,000,000</td>
</tr>
<tr>
<td>Normal track switching</td>
<td>800,000</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.2%</td>
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</table>
CURRENT RULE IN HANDBOOK

• Schenck Process has requested that a modification be made to section UR 2.4 which refers to scales have a cut in the rail and states “clearance shall be provided around all live parts to the extent that no contacts may result when the load-receiving element is empty, nor throughout the weighing range of the scale”.

SUGGESTED CHANGES

• Our suggestion Add a footnote after the word “scale” at the end of the first sentence that would read, “An in-motion railway track scale is not required to provide clearance using rail gaps to separate the live rail portion of the weighing/load-receiving element from that which is not live if the scale is designed to be installed and operated using continuous rail.”

• While leaving the original rule in place the handbook now reflects our proven design and technology
VOTING PASSED

- Change passed as a voting item through to the interim meeting by NEWMA and SWMA
- At the interim meeting the S&T committee decided to pass the item through as a voting item at the July meeting in Detroit
- Changes approved as a voting item by the CWMA
- Passed through as a voting item at the interim meeting at the start of 2014
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