Implications of Remote Monitoring to Rule 95

Handbrake Left Applied

Mitsui Rail Capital, LLC - RSI - Sept 20, 2011
“Please Release Me... Let Me Roll”

The link between inadequate release of the handbrakes and wheel damage has already been established as a significant industry issue.
Case Study: (500) ‘05 Built - 53’ Well Cars w/Truck Mounted Brakes

The repair billing records show 1022 wheelsets were replaced between 6/30/2005 and 1/19/2009 at a cost of $1.19M (excluding labor and jacking).

955 B-end vs. 67 A-end Wheelsets

93.5% on the B-end!

Resulting in an expense of

$1.03M on the B-end & $160k on the A-end

Additionally, there were 260 open EHMS WILD alerts; 242 B-end vs. 18 A-end wheels
Case Study: (500) ‘05 Built - 53’ Well Cars w/Truck Mounted Brakes

A typical example of handbrake induced tread damage repaired and reported as a Rule 41 “Why Made 65”
Remote Monitoring of the Handbrake

MRC equipped 30 cars with remote handbrake monitoring devices and has actively collected data on railcars moved with and without the handbrake applied since February 2009.

Handbrake Off: tilt sensor rotated below horizontal  
Handbrake On: tilt sensor rotated above horizontal

A separate solar-powered GPS device records and transmits car position, car movement and handbrake sensor data.
Request for AAR Rules Review - January 20, 2010

January 20, 2013

Thomas J. Salita
Executive Director, Rules and Standards
Association of American Railroads
581 First Street N.W.
Washington, D.C. 20001-1564

Subject: Wheel Damage from inadequate Release of the Handbook

Mr. Salita,

Over the past several years, the Advanced Technology Safety Initiative (ATSI) has resulted in changes to the Interchange Rules that are intended to reduce stress on the rail infrastructure and improve safety. The most significant change in this regard has been the introduction of Wheel Impact Load Deflectors (WILDs). Implementation of WILDs has significantly increased the number of wheel failures being reduced each year.

As currently written, we believe Rule 41 requires wheels to be replaced prematurely due to high impact readings, resulting in significant costs for the car owner, without sufficient measure to the party responsible for the damage to the wheels. The following case study clearly illustrates wheel replacements that were caused by inadequate release of the handbook prior to moving the cars. As such, we are proposing a change to Rule 95 to address this issue.

Case Study:

Florida East Coast Lines has a group of first-hundred (100) narrow gauge 2-foot railcars that must be released on the railroads that they affect at the end of the railroads (commonly known as the Board of the railroad). All repair history data for these railcars (see ERCR-1929) shows there were a total of 1122 wheelsets replaced in the period from 2000 to 2010 (see 1/10/2010, 9/30/2010, 9/30/2010, 9/30/2010). For the Board of the railroad (see ERCR-1929), the breakdown of failures on the A rail (see ERCR-1929) was as follows:

- 127 Wheelsets for wheelset defects (such as out of round, dented, (and/for thin branches)

- 20 Wheelsets for wheelset defects (branch or high flange and/or thin flanges)

- 50 A rail wheels were determined (such as out of round, dented, (and/for thin flanges)

- 50 A rail wheel were determined (such as out of round, dented, (and/for thin flanges)

Chicago: Tom Harris
Handbrake & GPS sensors record when and where a handbrake is applied and released along with the movement of the railcar.

<table>
<thead>
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<th>#</th>
<th>Date/Tim</th>
<th>S1 Trans</th>
<th>Unit</th>
<th>Msg Type</th>
<th>Location</th>
<th>Speed</th>
<th>Direction</th>
<th>S1 y tilt</th>
<th>S1 y dig</th>
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<td>Move</td>
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AC 2586: AAR Arbitration and Rules Committee Tag witnessed the installation of 5 addition handbrake sensors at GRS Tucson 9-14-10

Following the installation the AC2586 Tag were given on-line access to monitor the five (5) cars. Three (3) of the cars were subsequently moved with their handrake applied and have either had B-end wheel replacements or have open Wild alerts.
All the wheels shown were replaced as impact wheels under Rule 41
MRC also installed 5 handbrake sensors on a group of box cars - all 5 cars were moved with the handbrake applied.
Proposed AAR Interchange Rules Revision - November 11, 2010

• New item (15). Added to Field Manual Rule 95 Section A: (15). **Car equipped with handbrake remote monitoring equipment and moved with the handbrake applied.**

• New item (9). Added to Office Manual Rule 94: (9). **If a Field Manual Rule 95, Section A. 15 condition is detected, the car owner may generate an unfair usage incident report in the AAR DDCT system. Such record must include the date, time, GPS coordinates and last available CLM detail.**

• New item (8). Added to Office Manual Rule 44: (8). **Counter Billing Authority shall be issued against the handling line indicated in the DDCT record for any wheel set replacement Job Code billing referencing Why Made Codes 61, 65 or 67, plus jacking charges, occurring within 4 years or 100,000 miles of the DDCT incident date. Only one CBA per car location, affected by the handbrake, will be allowed. If mileage criterion is used, car owner must provide mileage documentation when requesting CBA.**

**REASON:** Compensate car owners for wheel set removals caused by moving cars with applied handbrakes. Foster improved handbrake release compliance by train crews.
Process Flow for Cars Moved with Handbrake Applied:

- Car arrives location
- Car handbrake is applied, in accordance with operating practice of the location
- Car is moved without release of the handbrake
- Remote Monitoring Equipment (RME) on the Car detects the movement of the car and the failure to release the handbrake.
- RME reports to the Asset Owner the Car has moved without release of the handbrake
- RME back office system will create a record of the date, time, GPS coordinates and the last available CLM.
- Asset Owner may create a DDCT incident report using the CLM data to determine the handling line.
- Asset Owner will pay BRC’s per current AAR Rules.
- Asset Owner may then submit repair data for wheel set and jacking charges, once per car location under the influence of the handbrake, in 500-byte format to the DDCT within 4 years or 100,000 miles of the incident.
- CBA will be issued against the handling line through the DDCT for wheel set and jacking charges for wheel set removed for Why Made Codes 61, 65 or 67 within 4 years or 100,000 miles of the incident.
AC2586 - Current Status & Next Steps

- On May 19, 2011, MRC was invited to talk to the AAR EEC about remote monitoring of handbrakes. The next step is a 6-month operational and functional trial on the UPRR. MRC has procured Five (5) additional sets of monitoring equipment and is ordering cars into shop.

- On September 8, 2011, Arbitration and Rules updated MRC that they had met in April 2011, and decided that Mitsui, or any other proponent of remote monitoring equipment should be responsible to develop the standards for the intended devices. Another facet that surfaced was ongoing calibration and maintenance of the devices.

- While MRC agrees that standards, calibration and maintenance for remote monitoring devices will need to be establish. Such issues are ancillary and dependent on a determination of the main issue presented to the Arbitration & Rules Committee: Is wheel damage which arises from a handbrake being left applied considered “handling line damage”?
  - If the Arbitration & Rules Committee has determine that wheel damage arising from handbrakes being left applied is NOT handling line damage, there is no need to establish standards or calibration/maintenance protocols.
  - However, if the Arbitration & Rules Committee has determined that wheel damage arising from handbrakes being left applied is handling line damage, then I believe that Rule 95 will apply and appropriate standards, calibration and maintenance protocols should be established.
MRC believes the current AAR rules should be reviewed and revised to permit the equitable recovery of such costs, if the responsible party can be identified.
MRC (on behalf of CBH) just awarded a contract to IONX (a division of Amsted) to supply of 574 sets of on-board load weigh systems. The load weigh system will transmit the net weight of product loaded into the car to the loader in real-time; allowing CBH to maximize gross rail load for different density products such as grain, barley and oats and avoid over-loading penalties.
Supporting Data from Other Car Owners with Truck Mounted Brakes

Cars with handbrake applied to one (1) truck - truck mounted brakes

<table>
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<tr>
<th># W/sets Repl.</th>
<th>#cars</th>
<th>Loc 1</th>
<th>Loc 2</th>
<th>Loc 3</th>
<th>Loc 4</th>
<th>Total B</th>
<th>Total A</th>
<th>Delta B vs. A</th>
<th>Cost Delta</th>
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<td>1430</td>
<td>1191</td>
<td>346</td>
<td>167</td>
<td>2621</td>
<td>513</td>
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<td>$2,454,513</td>
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<tr>
<td>Car Owner &quot;B&quot;</td>
<td>17403</td>
<td>6834</td>
<td>6912</td>
<td>3444</td>
<td>3671</td>
<td>13746</td>
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<td>Car Owner &quot;C&quot;</td>
<td>3442</td>
<td>2859</td>
<td>2676</td>
<td>77</td>
<td>79</td>
<td>5535</td>
<td>156</td>
<td>5379</td>
<td>$6,263,200</td>
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</tbody>
</table>

Cars with handbrake applied to two (2) trucks - body mounted brakes

| Car Owner "C"  | 4236  | 369   | 285   | 289   | 361   | 654     | 650     | 4             | $4,658     |