



# Federal Railroad Administration

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Railroad Safety Advisory Committee

Track Safety Standards

Working Group Report

February 20, 2008

# **Track Safety Standards Working Group**

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**February 22, 2006 – the Track Safety Standards Working Group was established.**

**The WG initial purpose was to review and revise the CWR related provisions of the Track Safety Standards.**

# Track Safety Standards Working Group

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## CWR Directive

**Recommendation regarding FRA's role in oversight of CWR programs, including analysis of data to determine effective management of CWR safety by the railroads.**

# CWR Tasks

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- **Review FRA Inspection data and the pertinent accident/incident data and reporting criteria.**
- **Evaluate further enhancements for the management of CWR to prevent track buckling and joint failures, including design, maintenance and inspection.**

# **Track Safety Standards Working Group**

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**Multiple meetings held**

**January 2007 - Jacksonville, FL**

**April 2007 – Chicago, IL**

**June 2007 – Ft. Worth, TX**

**August 2007 – Denver, CO**

**October 2007 – Arlington, VA**

**January 2008 – Baltimore, MD**

# **CWR Update**

## **Working Group Discussions**

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### **Issues for Review, Analysis and Discussion**

- **Training/Retraining**
- **Submission of CWR Plans**
- **Special Inspections**
- **Manual**
- **Definition of CWR**
- **Ballast**

# **CWR Proposed Regulatory Text**

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**The Track Safety Standards Working Group  
respectfully submits the following  
CWR Proposed Regulatory Text**

# **CWR Update**

## **Working Group Discussions**

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**Issue #1 – Training/Retraining – Develop written procedures which address the training and retraining of employees responsible for the installation adjustment, maintenance, and inspection of CWR.**

**Proposed Regulatory Text - §213.7 (c) and §213.119 (h).**

# CWR Proposed Regulatory Text

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## §213.7(c)

- (c) Individuals designated under paragraphs (a) or (b) of this section that inspect continuous welded rail (CWR) track or supervise the installation, adjustment, and maintenance of CWR track in accordance with the written procedures of the track owner shall have:**

# CWR Proposed Regulatory Text

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## §213.7(c) cont.

- (1) Current qualifications under either paragraph (a) or (b) of this section;**
  
- (2) Successfully completed a comprehensive training course specifically developed for the application of written CWR procedures issued by the track owner;**

# CWR Proposed Regulatory Text

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## §213.7(c) cont.

**(3) Demonstrated to the track owner that the individual:**

- (i) Knows and understands the requirements of those written CWR procedures;**
- (ii) Can detect deviations from those requirements; and**
- (iii) Can prescribe appropriate remedial action to correct or safely compensate for those deviations; and**

**(4) Written authorization from the track owner to prescribe remedial actions to correct or safely compensate for deviations from the requirements in those procedures and successfully completed a recorded examination on those procedures as part of the qualification process to be made available to the FRA.**

# CWR Proposed Regulatory Text

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- § 213.119(h)
- (h) The track owner shall have in effect a comprehensive training program for the application of these written CWR procedures, with provisions for **annual** re-training, for those individuals designated under **§ 213.7(c)** as qualified to supervise the installation, adjustment, and maintenance of CWR track and to perform inspections of CWR track. ***The track owner shall make the training program available for review by the FRA upon request.***

# **CWR Update**

## **Working Group Discussions**

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### **Issue #2 – Submission of CWR Plans**

**Develop procedures for the submission and implementation of modified CWR plans.**

**Proposed Regulatory Text - §213.119**

**Continuous Welded Rail (CWR); general.**

# CWR Proposed Regulatory Text

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## § 213.119

The track owner shall submit his CWR plan to the Federal Railroad Administration not less than 30 days prior to its implementation. FRA will send a written statement to the track owner acknowledging receipt of the plan. Upon review of the plan, FRA reserves the right, for cause stated, to disapprove the plan. Notice of such disapproval shall be made in writing and specify the basis for the disapproval decision. If FRA disapproves the plan, the railroad shall be provided an opportunity of not less than 30 days to respond and to provide written submissions in support of the plan. FRA shall render a final decision in writing and the railroad shall be provided a period of not less than 30 days to amend the plan in accordance with FRA's decision.

# **CWR Update**

## **Working Group Discussions**

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**Issue #3 – Special Inspections –  
Environmental conditions including  
severe weather (hot and cold) that can  
adversely effect the integrity of the joint.**

**Proposed Regulatory Text - §213.119 (f).**

# CWR Proposed Regulatory Text

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## § 213.119(f)

- (2) Pull-apart prone conditions in CWR track**
  - (i) locations where pull-apart or stripped joint rail conditions are likely to occur; and**
  - (ii) in formulating the procedures under this paragraph (f), the track owner shall –**
    - (a) specify the timing of the inspection; and**
    - (b) specify the appropriate remedial actions to be taken when pull-apart prone conditions are found.**

# **CWR Update**

## **Working Group Discussions**

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### **Issue #4 – Manual**

**Railroads maintain/retain procedures and guidelines on site during performance of CWR duties within their M of W manuals.**

**Proposed Regulatory Text - § 213.119 (j).**

# CWR Proposed Regulatory Text

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## § 213.119(j)

(j) The track owner shall make readily available, at every job site where personnel are assigned to install, inspect or maintain CWR, a copy of the track owner's CWR procedures and all revisions, appendices, updates, and referenced materials related thereto prior to their effective date. Such CWR procedures shall be issued and maintained in one CWR procedures manual.

# **CWR Update**

## **Working Group Discussions**

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### **Issue #5 - Definition of CWR**

**Develop language more consistent with the rule; in nature of the joint.**

**Proposed Regulatory Text - §213.119 (k).**

# CWR Proposed Regulatory Text

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## § 213.119(k) Definitions

- ***Continuous Welded Rail (CWR)*** means rail that has been welded together into lengths exceeding 400 feet. Rail installed as CWR remains CWR, regardless of whether a joint or plug is installed into the rail at a later time.

***Note: Definitions currently under 119(j) would be moved to 119(k)***

# CWR Proposed Regulatory Text

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## § 213.119(k) cont.

- *CWR Joint* means any joint directly connected to CWR.
- *Rail neutral temperature* is the temperature at which the rail is neither in compression nor tension.

# **CWR Update**

## **Working Group Discussions**

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### **Issue #6 – Ballast**

**Carrier should define ballast specific criteria within program plans.**

**Consensus – WG resolved to maintain §213.103 regulations in accordance to the Track Safety Standards.**

# CWR Working Group: Non Regulatory Consensus Issues

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- **The Working Group identified technical issues relating to CWR plans that needed to be researched and analyzed. The WG proposed to provide the analysis to FRA for consideration when reviewing submitted CWR Plans.**

# CWR Working Group: Technical Consensus Issues

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- **The technical issues included:**
  - Maintaining Desired Rail Installation Temperature Range
  - Inspecting for Curve Movement
  - Speed Restrictions for Track Work following mechanized stabilization
  - Ambient Temperature versus Rail Temperature
  - Cold Weather Inspections
  - Rail Anchoring Requirements

# CWR - Technical Consensus Issues

## Maintaining Desired Rail Installation Temperature Range

Rail break or cut Temperature (°F)	Rail temperature (°F) at which to readjust or apply slow order
60	135
50	130
40	125
30	120
20	115
10	110
0	105
-10	100
-20	95
-30	90
-40	85

# CWR - Technical Consensus Issues

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## Maintaining Desired Rail Installation Temperature Range

- Re-adjust RNT above safe zone minimum (designated rail laying temperature minus 20 degrees)
  - 40 mph with daily inspection, site specific, peak heat of day
- **OR**
  - 25 mph (use twice weekly inspection per regulation).

# CWR - Technical Consensus Issues

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## Maintaining Desired Rail Installation Temperature Range (cont.)

- **Known (not indeterminate) rail neutral temperature locations not in safety range (RLT minus 20 range) will ultimately be adjusted in 365 days.**
- **Each railroad will document inspection procedures for heat orders and special heat inspections**
- **Each railroad will keep track of rail gap and rail temperature during rail separations.**

# CWR - Technical Consensus Issues

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## Inspecting for Curve Movement as a result of disturbed track

When surfacing a 3° (or higher degree) curve, when the rail temperature is substantially (50 degrees) below the rail laying temperature, the curve must be staked and the curve movement monitored. If more than 3" of curve movement occurs then slow orders must be placed if the curve is not lined out before rail temperatures reach the desired laying temperature.

# CWR - Technical Consensus Issues

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## Speed Restrictions for Track Work following Mechanized Stabilization

Properly tuned ballast stabilizers provide the equivalent of 0.1 MGT of traffic, and that this is sufficient traffic to allow resumption of normal speeds on track. FRA has accepted that 16 passenger trains or 8 freight trains or an equivalent combination thereof will also provide adequate stabilization.

# CWR - Technical Consensus Issues

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## Ambient Temperature versus Rail Temperature

All standards are referenced to rail temperature.  
For forecasting work in the short term, the  
railroad may use predicted ambient plus 30°  
to estimate rail temperature.

# CWR - Technical Consensus Issues

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## Cold Weather Inspections

- Cold weather Inspections – 100° below theoretical rail laying temperature appears reasonable.

# CWR - Technical Consensus Issues

## Rail Anchoring Requirements

CONDITION	ACTION
<p>Turnout Rail crossings Joint where CWR abuts jointed rail</p>	<p>ETA 195' both directions &lt;&lt; all railroads to comply within grace period to be determined&gt;&gt;</p>
<p>Bolted joint installed during CWR installation</p>	<p>within 60 days Weld joint, OR Install joint with 6 bolts, OR ETA 195' both directions</p>
<p>Bolted joint in CWR experiencing service failure (stripped joint) or failed bar(s) with gap* present</p> <p>* gap exists if it cannot be closed by drift pin</p>	<p>Weld joint OR Remediate joint conditions (per action item 6.5 Generic Plan) AND Replace bolts(new, in-kind or stronger), and weld joint within 30 days OR Replace failed bar(s), install 2 additional bolts and adjust anchors OR Replace failed bars, bolts(if broken, missing) and ETA 195' in both directions, OR Add rail</p>

# CWR Non-Consensus Proposed Regulatory Text

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## § 213.119(c) NON Consensus- Action Item –

(c) CWR joint installation and maintenance procedures which include that -

(1) Each rail shall be bolted with at least two bolts at each CWR joint.

(2) In the case of a bolted joint installed during CWR installation after (insert publication date), the track owner shall within 60 days

(i) weld the joint; or

(ii) install a joint with six bolts; or

(iii) anchor every tie 195 feet in both directions of the joint within 60 days.

# CWR Non-Consensus Proposed Regulatory Text

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## **§ 213.119(c) NON Consensus- Action Item – (cont.)**

- (3) In the case of a bolted joint in CWR experiencing service failure or a failed bar with a rail gap present, the track owner shall**
- (i) weld the joint; or**
  - (ii) remediate joint conditions, replace the broken bolts, and weld joint within 30 days; or**
  - (iii) replace the broken bar, install two additional bolts, and adjust anchors; or**
  - (iv) replace the broken bar, replace the broken bolts, and anchor every tie 195 feet in both direction from the CWR joint; or**
  - (v) add rail with provisions for later adjustment pursuant to (d)(2) of this section.**

# **CWR Non-Consensus Proposed Regulatory Text**

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## **AAR Position Non-Consensus Item 213.119(c)**

**The language in 213.119, and for the most part all of 213, addresses generic procedures, requirements, conditions, and deviation from minimum standards. The language proposed for 213.119(c) by the FRA infringes upon the original intent of 213.119 and now addresses specific remedies for generic conditions.**

**The AAR strongly objects to the FRA's proposed 213.119(c) language becoming regulatory text on the basis that it would set a dangerous precedent for regulatory creep, as future corrective action finds its way into regulatory text.**

**The AAR believes that item 213.119(f) adequately and consistently describes the generic condition in question. Moreover, we find no merit in the FRA's 213.119(c) proposal.**

# Track Safety Standards Update

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**Task 07-01 was assigned to the Working Group**

**Tasks assigned:**

- **Review controls applied to reuse of rail in CWR (“plugged rail”)**
- **Review the issue of cracks emanating from bond wire attachments**
- **Consider improvements in the Track Safety Standards related to fastenings of rail to concrete ties, and**
- **Ensure a common understanding within the regulated community concerning requirements for internal rail flaw inspections.**

# **Track Safety Standards Update**

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**The WG organized two Task Groups to act on the four items:**

**Rail Integrity Task Group will discuss the three rail related items; and**

**Concrete Tie Task Group.**

**They have had two meetings.**



# Questions and Discussion