# Federal Railroad Administration

February 22, 2006

Railroad Safety Advisory Committee

Continuous Welded Rail
Bolted Joints - Interim Final Rule

# History

- January 18, 2002 - Derailment of Canadian Pacific train Near Minot, ND (plug rail bolted joint fracture).
- April 6, 2002 - Derailment of Amtrak train near Flora, MS on Canadian National (CWR procedure).
- October 16, 2004 - Derailment of Union Pacific train near Pico Rivera, CA (glued insulated joint failure).

# SAFETEA-LU

**August 10, 2005 - Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users (SAFETEA-LU).**

# SAFETEA-LU (Continued)

- **Instruct FRA track inspectors to obtain copies of the most recent CWR programs of each railroad within the inspectors' area of responsibility.**
  - FRA is in the process of revising its Track Compliance Manual instructing inspectors to obtain each railroad's CWR program. We have also posted on our secure web site electronic copies of the current CWR programs, which can be accessed by inspectors.

# SAFETEA-LU (Continued)

- **FRA to establish a program to review CWR joint bar inspection data from railroads.**
  - For analysis purposes, FRA has developed a new set of “defect codes” to capture CWR joint defects.
  - Require FRA inspectors to use CWRP “activity code” to identify inspections on railroads with CWR.
  - Instruct FRA inspectors to review carriers CWR joint bar inventory data and conduct field observations.

# SAFETEA-LU (Continued)

- **Requires each track owner to implement procedures to improve the identification of cracks and other incipient failures in bolted joints within Continuous Welded Rail (CWR).**
  - Interim Final Rule regarding CWR was published on November 2, 2005, 70 Federal Register 66288, Docket No. FRA 2005–22522. Compliance date January 3, 2006, for new paragraph (g) under §213.119.

# Interim Final Rule (IFR)

- **Railroads to identify and locate each bolted rail joint in CWR.**
  - Implement a system so that each joint can be located and identified in the field with sufficient precision and without ambiguity.
  - Create an inventory of each CWR joint to enable personnel to identify joints due for periodic inspections.
  - Recordkeeping of each CWR joint inspection and any remedial action required under the track owner's CWR plan.

# IFR Requirements

- **Conduct periodic and special on-foot inspection of all bolted rail joints in CWR.**
  - Glued bolted joints ***are*** subject to the IFR requirements but are not considered to be a break (longitudinal discontinuity) in CWR.
  - Rail joints at the end of CWR, including connections to frogs, slip/expansion joints, etc., are subject to the requirements of the IFR. The assemblies themselves are not subject to the IFR.
  - Switch-point heel blocks are not subject to the requirements of the IFR.

# IFR Requirements (Continued)

- **Specify the conditions of potential joint failure.**
  - Joint bars with visible or otherwise detectable cracks.
  - Loose, bent, or missing joint bolts.
  - Rail end batter or mismatch that contributes to impact loads and instability of the joint.
  - Evidence of excessive longitudinal rail movement in or near the joint, including, but not limited to, wide rail gap, defective joint bolts, disturbed ballast, surface deviations, gap between tie plates and rail, or displaced rail anchors.

# IFR Requirements (Continued)

- **Specify the appropriate remedial actions.**
- **Specify the timing of the inspections, which should be based on the configuration and condition of the joint.**
  - The IFR does not relieve railroads from their monthly switch and bridge slip/expansion joints inspections under §213.235.
- **At a minimum, track owners must specify that all joints in CWR be inspected as shown in the following table (next slide).** ☞

# IFR Requirements (Continued)

| Class Track | Date by which first inspection (and inventory) must be completed | Maximum time span to next inspection |
|---|---|---|
| 4, 5, and 6 | October 31, 2006 | 190 days (approximately twice every year) |
| 3 | April 30, 2007 | 370 days (approximately once a year) |
| 2 (Passenger Trains) | April 30, 2007 | 370 days (approximately once a year) |
| 2 (No Passenger Trains) | Method to address joints in CWR shall be determined by railroad and incorporated in their procedures. Inventory and minimum inspection frequency requirements do not apply. | |
| Class 1 (Freight or Passenger) | | |
| Excepted within segments that must meet Class 1 | | |

# IFR Alternative

- **In lieu of the requirements for the on-ground inspection, a track owner may seek approval from FRA to use alternate procedures.**
  - The track owner shall submit the alternate procedures and supporting documentation to the Associate Administrator for Safety (Associate Administrator).
  - If the Associate Administrator determines that the alternative procedures do not provide an equivalent level of safety, the Associate Administrator will disapprove in writing.
  - While a determination is pending, the track owner shall continue to comply with the requirements within this section of the IFR.

# IFR Comments

- The IFR should not require railroads to inventory CWR joints or record inspection results by joint.
- It is unnecessary for IFR to apply to joints next to turnouts and diamonds since monthly inspections of turnouts and diamonds are already required.
- The requirement to inspect for rail end batter or mismatch should be clarified.
- The railroads should not be required to remove pavement or crossing pads to inspect joints.
- Railroads should be permitted to operate an irregularly scheduled train over Class 2 CWR without the required CWR joint inspections.
- Current inspection frequency is a one-size-fits all approach that will not establish sufficient levels of safety under certain conditions.

# Questions and Discussion