

ITEM NO. 2

NTSB Track Group Factual Addendum Report

**NATIONAL TRANSPORTATION SAFETY BOARD
OFFICE OF RAILROAD, PIPELINE, & HAZARDOUS
MATERIALS INVESTIGATION**

WASHINGTON, D.C.

**TRACK FACTUAL
ADDENDUM REPORT**

July 26, 2001

Location:	Nodaway, Iowa
Date of Accident:	March 17, 2001
Time of Accident:	11:40 p.m. Central Standard Time
Railroads Involved:	National Railroad Passenger Corporation Operating Over Burlington Northern Santa Fe Railway
NTSB Investigation No.:	DCA 01 MR 003

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Accident Summary

On March 17, 2001, approximately 11:40 p.m. central standard time, westbound National Railroad Passenger Corporation (Amtrak) train No. 5-17, the California Zephyr, en route from Chicago, Illinois to Oakland, California, derailed near Nodaway, Iowa. At the time of the derailment, the train was being operated at a recorded speed of 52 miles per hour (mph). A broken rail was discovered at the point of derailment.

Amtrak train No. 5-17 was operating over the Burlington Northern Santa Fe Railway (BNSF) Creston Sub-Division at the time of the derailment. The engineer indicated that he was operating his train under the authority of a clear signal indication when he felt the train "tug" in resistance. He subsequently initiated an emergency brake application, and shortly thereafter realized that his train had derailed.

Amtrak train No. 5-17 consisted of two locomotive units and 16 cars. All but the rear five cars derailed. There was no fire, nor hazardous materials involved in the accident.

The Amtrak operating train crew consisted of an engineer and two conductors with 13 "on-board" service personnel. In addition, there were 241 passengers on board the train. As a result of the derailment, there were 78 injured persons, which included one fatality.

The weather conditions were clear and about 21° Fahrenheit. The wind was calm.

Addendum to Tests and Research

The BNSF Engineering Instructions for Selecting Replacement Rail, revision date April 1, 2000, included the following items;

1. Do not use "A" rails for replacement rails.
2. Select and install replacement rail that provides the best possible match on both the gage side and the running surface.
3. Install rail of the same metallurgy. Do not install standard carbon rail in curves with premium rail.

The BNSF Engineering Instructions for Selecting Replacement Rail, revision date March 1, 2001, included the following items. In addition, this statement prefaced the items. "Poor quality rail used for defect removal may itself become defective. One survey found that 17 percent of defects during the month measured were in rails installed to remove previous defects." To reduce the probability of replacement rail becoming defective, follow these requirements.

1. Do not use "A" rails or non control cooled rail 112# or heavier for replacement in main track or sidings.
2. Select and install replacement rail that provides the best possible match on both the gage side and the running surface. The mismatch on the gage side and running surface may not be more than 1/8 inch.

3. Install rail of the same metallurgy. Do not install standard carbon rail in curves with premium rail.
4. If the track carries more than 20 MGT/year, make every effort to use rail known to have accumulated less than 500 MGT, or rail no more than 5 years older than parent rail.
5. Use replacement rail with good surface quality, with no corrugation, head checking, shelling, or spalling.
6. Do not use rail branded "Algoma", "British", "Vilru", or "Workington".
7. Do not use rail recovered from the main body of curves relayed due to defects or rail surface condition.

Since the derailment, the BNSF has issued Engineering Instructions for Selecting Replacement Rail, revision date May 15, 2001. This revision included two more items to the March 1st revision date version.

1. Do not use Bethlehem fully heat-treated rail (see section 6.6.5A [6]).
2. In main tracks with passenger trains or more than 20 MGT/year, secondhand rail installed for defect removal, service failure repair, joint elimination, and derailment repair must be certified that it has been ultrasonically tested for internal defects. Ultrasonically tested secondhand rail will be marked as follows on the base of the rail: UTT (for "ultrasonically tested)-Test Date-Test ID # (unique number assigned by the Manager Rail Detection)-Tester's initials. If new rail or ultrasonically tested secondhand rail is not available and noncertified rail is used, it must be protected with a 40 MPH temporary speed restriction until it is tested in track and marked accordingly.

The Code of Federal Regulations Title 49 (Track Safety Standards) Part 213.237, Inspection of Rail does not specifically address the need of inspecting replacement rail for internal defects prior to reuse. However, paragraphs (d) and (e) state the following:

- (d) If the person assigned to operate the rail defect detection equipment being used determines that, due to rail surface conditions, a valid search for internal defects could not be made over a particular length of track, the test on that particular length of track cannot be considered as a search for internal defects under paragraph (a) of this section.
- (e) If a valid search for internal defects cannot be conducted for reasons described in paragraph (d) of this section, the track owner shall, before the expiration of time or tonnage limits-

- (1) Conduct a valid search for internal defects:
- (2) Reduce operating speed to a maximum of 25 mph until such time as a valid search for internal defects can be made; or
- (3) Remove the rail from service.

A handwritten signature in black ink, appearing to read "Cyril E. Gura". The signature is fluid and cursive, with the first name "Cyril" being more prominent than the last name "Gura".

Cyril E. Gura,