

# NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C.

## Railroad Accident Brief Report

ATL 97 FR 011  
DERAILMENT  
CONSOLIDATED RAIL CORPORATION  
SANDUSKY, OHIO  
APRIL 21, 1997

On April 21, 1997, about 11:29 a.m., eastern daylight time, a Consolidated Rail Corporation (CR) eastbound freight train ELBU-1 derailed 31 cars at milepost (MP) 253 on CR's Chicago Line, near Sandusky, Ohio. The train consisted of 2 locomotive units and 136 cars and was manned by an engineer and a conductor. There were no injuries. At the time of the accident, it was cloudy with an ambient temperature reported at 51° F. Total damage was estimated at \$ 1.1 million.

The crew reported for work at 9:15 a.m. in Toledo, Ohio. The train departed Toledo at 10:00 a.m. The train proceeded without incident until passing over a hot box and dragging equipment detector located at MP 260.9. The detector gave an alarm that the train had a possible hot box on the south side of the train at the 486<sup>th</sup> axle. The engineer brought the train to a stop between Control Point (CP) 256 and CP 253 about 10:42 a.m. The conductor inspected the train for the suspected hot box. He reported to the train dispatcher that the axle bearing on CR 221456 was slightly warm, but could continue on in the train.

While the train was stopped, the train dispatcher gave the conductor a 30-mph speed restriction at CP 248 on track No. 1. The conductor copied the speed restriction on CR's Form D. He said he gave a copy of the form to the engineer. After receiving Form D the train departed from MP 260.9. The trip was uneventful until about MP 249 when the conductor reminded the engineer about the 30-mph temporary speed restriction at MP 248. The conductor said that the engineer responded by applying the dynamic brake. The conductor also stated that at CP 248 he felt three serious "run-ins" [of the slack] from the rear of the train. At 11:28 a.m. the crew made an emergency radio transmission, indicating that the train had derailed.

In a Safety Board interview the engineer said that he believed that the speed restriction was at CP 242 not at CP 248. The event recorder data from the lead locomotive indicated that the train was moving at 42 mph with the throttle in position No. 8, 1 mile from the restriction. The data then showed that in 1 second the throttle was moved from the No. 8 to the "Off" position. One second later the

dynamic brake was set up in position No. 8. And in 33 seconds the dynamic brake was loading 900 amps and the train speed was 37 mph. Three seconds later the train went into emergency braking.

When the conductor reminded the engineer of the speed restriction, the engineer attempted to set up the dynamic brake too quickly, causing the slack to run-in and derailing the train. The Safety Board conducted a simulation using the event recorder data to operate the train in the same manner as the engineer. The simulation showed that by shutting off the throttle without waiting for the slack to adjust and applying maximum dynamic braking, sufficient lateral and vertical in-train forces were produced to derail the train.

### **PROBABLE CAUSE**

The National Transportation Safety Board determines that the probable cause of this accident was the engineer's improper handling of the throttle and the dynamic brake which allowed the slack to run-in and cause enough lateral and vertical in-train forces to derail the train.

Adopted: August 18, 1998