



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: August 8, 2002

In reply refer to: H-02-13 and -14

Mr. James C. Welsh
President and General Manager
Kissimmee Utility Authority
1701 West Carroll Street
Kissimmee, Florida 34741-8406

The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

These recommendations address the ineffective execution of the roles and responsibilities of the power company and its contractors and subcontractors, the Florida Department of Transportation, the motor carrier, the truckdriver and pilot car drivers in planning and effecting the movement of oversize load; the adequacy of the railroad notification requirement; and the lack of low-clearance warning signs and standard 1-800 emergency number signs. The recommendations are derived from the Safety Board's investigation of the November 17, 2000, tractor-trailer combination vehicle and train collision in Intercession City, Florida,¹ and are consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has issued eight safety recommendations, two of which are addressed to the Kissimmee Utility Authority (KUA). Information supporting the recommendations is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

On November 17, 2000, about 4:35 p.m., eastern standard time, near Intercession City, Florida, a 23-axle, heavy-haul vehicle, operated by Molnar Worldwide Heavy Haul Company (Molnar), headquartered in Athens, Texas, was delivering a condenser to the KUA Cane Island Power Plant. The private access road to the plant crossed over a single railroad track owned by CSX Transportation, Inc. (CSXT). As the vehicle, traveling between 1 and 3 mph, crossed the tracks, the crossing warning devices activated and the gates came down on the load. Seconds

¹ For additional information, read National Transportation Safety Board, *Collision Between Amtrak Train 97 and Molnar Worldwide Heavy Haul Company Tractor-Trailer Combination Vehicle at Highway-Rail Grade Crossing in Intercession City, Florida, on November 17, 2000*, Highway Accident Report NTSB/HAR-02/02 (Washington, DC: NTSB, 2002).

later, Amtrak train 97, operated by the National Railroad Passenger Corporation, collided with the right side of the rear towed four-axle tractor. No injuries occurred. The collision destroyed the tractor and caused over \$200,000 damage to the train and crossing signals.

The National Transportation Safety Board investigated a similar accident that occurred on November 30, 1993, at the same location.² In that accident, an overdimension, low-clearance vehicle operated by Rountree Transport and Rigging, Inc., was en route to deliver an 82-ton turbine to the electricity generating plant. The cargo deck of the transporter bottomed out on the roadway surface as the vehicle moved across the tracks. To gain sufficient clearance, the four-member truck crew shimmed the transporter while the cargo deck was on the tracks. About 12:40 p.m., the lights and bells at the grade crossing activated; the crossing gates descended, striking the turbine. Seconds later, Amtrak train 88, carrying 10 crewmembers and 89 passengers, struck the side of the cargo deck and the turbine. Six people sustained serious injuries and 53 suffered minor injuries. The vehicle and turbine were destroyed; the locomotive and first three railcars were damaged extensively. Total damage exceeded \$14 million.

The National Transportation Safety Board determined that the probable cause of the November 2000 collision of Amtrak train 97 with the tractor-combination vehicle was the failure of the Kissimmee Utility Authority, its construction contractors and subcontractors, and the motor carrier to provide for the safe passage of the load over the grade crossing.

This accident was very similar to the 1993 accident at the same location. Although the motor carrier was different, the KUA was not only the owner of the crossing and the receiver of both loads, it also had representatives at the crossing during both collisions. Additionally, no one contacted the railroad in either accident to determine whether it was safe to cross the tracks.

In 1993, the Amtrak train hit the truck near the center of its load, and as a result, the locomotive and three railcars were damaged extensively, 59 people were injured, and damages exceeded \$14 million. In 2000, by contrast, the Amtrak train hit the rear of the combination vehicle at the pusher truck. The train essentially pushed the truck and its 82-ton load out of the way, and the train remained upright and on the tracks. However, had the truck started to cross the tracks several seconds later or the train arrived several seconds sooner, the collision may have occurred near the center of the 82-ton load, and the consequences could have been quite different.

In this accident, due to the intersection's proximity to the crossing and the elevated configuration of the vehicle, the maximum speed the vehicle could maintain near the crossing was between 1 and 3 mph. Based on this speed, the minimum time the vehicle would occupy the crossing was between 57 seconds and 2 minutes 50 seconds. Active railroad grade crossing devices are required to provide a minimum of 20 seconds of warning time to motorists before the arrival of a train, and typically these devices provide between 20 and 25 seconds of warning. The warning devices at this crossing provided a warning time of 25 seconds. Thus, the accident truck required at least two and as much as seven times more warning of an approaching train than the active warning devices provided, effectively neutralizing the active warning devices.

² For additional information, read National Transportation Safety Board, *Collision of Amtrak Train No. 88 With Rountree Transport and Rigging, Inc., Vehicle on CSX Transportation, Inc., Railroad Near Intercession City, Florida, November 30, 1993*, Highway Accident Report NTSB/HAR-95/01 (Washington, DC: NTSB, 1995).

Additionally, although the train engineer applied the brakes prior to actually identifying the truck on the crossing, he had no opportunity to avoid the collision. His brake application and throttle reduction during the approximately 16 seconds before the accident reduced the train speed by 19 mph, delaying his arrival at the crossing by about 1.71 seconds. While the train's reduced speed and slightly delayed arrival at the crossing may have altered the collision dynamics, there was still not enough time to avoid the collision. The truck would have needed an additional 3.4 seconds to 10.27 seconds to clear the tracks.

The vehicle created a hazard at this crossing, since it occupied the tracks well beyond the standard minimum warning time provided for a vehicle to cross safely. The only prudent way to minimize the risk was to notify the railroad sufficiently in advance of crossing to ensure that train traffic was stopped or not present at the time the vehicle traversed the tracks. The Board concludes that neither the KUA, nor its contractors, nor the motor carrier properly considered the risks of crossing the tracks without first notifying the railroad to arrange safe passage.

KUA contracted with Black & Veatch Corporation (Black & Veatch) to serve as architect-engineer and construction manager for both the 1993 and 2000 construction projects. Although KUA officials claimed to be aware of the hazards of low-clearance, slow-moving vehicles at this crossing since the November 30, 1993, accident, the Safety Board could not identify changes to their procedures to accommodate the special needs of these movements. Since the KUA Power Road crossing is a private crossing and the only oversize/overweight vehicles that traverse this crossing are those making deliveries during a KUA construction phase, KUA and its construction contractors and subcontractors have a responsibility for ensuring safety at this highway-rail grade crossing. Moreover, because of the 1993 accident, all these participants should have been acutely aware of the potential risk at this grade crossing and should have ensured that the railroad was notified.

The condenser involved in the November 17, 2000, accident was built by Mark Steel of Salt Lake City, Utah, and installed in Kissimmee by Thermal Engineering International Company (TEi) of Joplin, Missouri, which hired Molnar to haul the condenser from Salt Lake City to the construction site. According to KUA, all carriers were supposed to be advised to notify the railroad before moving oversize loads over the railroad crossing, although this requirement was not specified in writing. Safety Board investigators found that TEi and Molnar disagreed with one another about whether they exchanged information on railroad notification requirements. The railroad was not notified, and safe passage was not provided.

Obtaining transit times from the railroad is insufficient. In the 1993 Intercension City accident, the truckdriver stated that a KUA or Black & Veatch employee advised the truck crew to hurry because they could expect a train at a certain time; therefore, the truckdriver believed that KUA was in contact with the railroad. KUA denied that such a conversation occurred. Because these large, low-clearance, slow-moving vehicles require so much time to clear grade crossings and have the potential to bottom out or get stuck, it is imperative that the railroad control train traffic on the track until these vehicles are clear. To do this, the railroad has to be aware that a low-clearance, slow-moving vehicle needs to cross its track.

KUA and its contractor should know when they are to take delivery of a load and should ensure that the railroad is notified. They could accomplish the latter by terms of their contracts and by erecting signs in advance of the crossing that advise low-clearance or slow-moving

vehicle operators to notify the railroad before traversing the tracks. Therefore, the Safety Board believes that KUA should require that the CSXT railroad is notified in advance of accepting delivery by any low-clearance or slow-moving vehicles.

Although the combination vehicle did not get stuck or hang up on the crossing, the physical evidence and witness statements indicated that the vehicle did scrape the roadway on the departure grade. According to the 2001 American Association of State Highway and Transportation (AASHTO) guidelines, the roadway surface should not be more than 3 inches higher or lower than the top of the nearest rail at a point 30 feet from the rail, unless track superelevation makes a different level appropriate. At a point 30 feet from the rail, the north approach was 6.84 inches below the plane of the superelevation extension. Therefore, the Safety Board concludes that under current AASHTO guidelines, the north approach makes the KUA Power Road crossing a humped crossing.

Although the presence of slow-moving, oversize/overweight trucks appears to be related to construction cycles at the plant, the possibility that other low-clearance delivery trucks will traverse this crossing still exists. Truckdrivers should be warned that it is a humped crossing. Therefore, the Safety Board believes that the KUA should install low-clearance highway-rail grade crossing signs (W10-5s) at the KUA Power Road crossing.

Therefore, the National Transportation Safety Board recommends that the Kissimmee Utility Authority:

Require that the CSX Transportation, Inc., railroad is notified in advance of accepting delivery by any low-clearance or slow-moving vehicles. (H-02-13)

Install low-clearance highway-rail grade crossing signs (W10-5s) at the KUA Power Road crossing. (H-02-14)

The Safety Board also issued safety recommendations to Federal Highway Administration, Federal Motor Carrier Safety Administration, National Committee on Uniform Traffic Laws and Ordinances, American Association of State Highway and Transportation Officials, and all class 1 and regional railroads. In your response to this letter, please refer to Safety Recommendations H-02-13 and -14. If you need additional information, you may call (202) 314-6177.

Chairman BLAKEY, Vice Chairman CARMODY, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

Original Signed

By: Marion C. Blakey
Chairman