R-459

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: January 20, 1984

Forwarded to:

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Railroad Company
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SAFETY RECOMMENDATION(S)

R-84-1 through -3

About 1 p.m., e.s.t., on October 4, 1983, a car repairman at the Norfolk and Portsmouth Beltline Railroad Company yard in Portsmouth, Virginia, using an acetylene torch ignited a cargo containing 2,000 fifty-pound bags of ammonium nitrate while attempting to remove a bell crank bracket on a box car. Emergency response authorities evacuated residents within a 2,500-foot radius around the car and selected areas downwind of the plume, and closed a major highway and tunnel adjacent to the rail yard. Large quantities of ammonium nitrate have been known to explode violently while burning in a confined space. To avoid this, emergency responders first placed remote, high-pressure water monitors in front of the box car door. They then removed the door using a crane and immediately deluged the inside of the car with water. The evacuated areas were reopened about 6:15 p.m. There were no injuries or deaths attributed to this accident.

The box car was properly placarded with a yellow "OXIDIZER" placard bearing the United Nations identification number 2076. The "Bad Order" (repair tag) attached to the car specified a bent bell crank bracket as the needed repair and that the car was loaded. The "Bad Order" tag did not specify the name or hazardous nature of the cargo, or any other precautionary information.

The car repairman stated that he saw the oxidizer placard before initiating the repairs and that oxidizer meant "a slow burning process" to him. He had been issued the Association of American Railroads (AAR) Pamphlet 2 but had not received classroom training in hazardous materials during his 10 years as a car repairman. AAR Pamphlet 2 provides a cross-reference between chemicals and their United Nations identification number but does not provide information on the hazardous properties of the chemical or emergency measures in the event of an accident or release. The repairman did not inspect the cargo or interior of the car before starting the cutting operation with the torch. He stated that he would never attempt an open-flame repair on a "dangerous" placarded rail car which he described as having a red placard (flammable or flammable gas). This yard had not established recommended or standard procedures for the repair of rail cars containing hazardous materials.

Shortly before the cutting of the bracket was complete, smoke and liquefied ammonium nitrate began to pour from the hole inadvertently cut through the bottom of the car. The car had double steel walls. The car repairman threw several buckets of

water at the hole but was unsuccessful in abating the smoke or in reducing the flow of liquid. He then called the repair shop's general foreman who arrived at the repair track with portable fire extinguishers. These were used to no avail. At 1:21 p.m., the repair shop foreman then ordered the notification of the Portsmouth Fire Department and upon arrival of the first fire units at 1:23 p.m., fire personnel were provided a copy of the AAR emergency response guidebook which had been in the Chief Clerk's office. Later, when the repair shop foreman had an opportunity to review this emergency response guidebook, he stated that the information contained in this guidebook would be useful as reference material and for training rail yard employees on the hazards of materials transportation. The repair shop foreman recently assumed responsibility for all yard repairs because the yard's master mechanic was ill. He stated that he had not received classroom training in hazardous materials and described the hazardous materials information available to him prior to the accident as "inadequate."

The yard superintendent stated that he notified the Chemical Transportation Emergency Center (CHEMTREC) at 1:34 p.m. and requested information on the cargo and emergency actions. Shortly thereafter, a hazardous materials specialist from another rail carrier informed the superintendent that he also must notify the National Response Center (NRC) of the U.S. Department of Transportation. The NRC conducted a phone bridge between the yard superintendent, the shipper of the cargo, the Federal Railroad Administration, and the Coast Guard. The yard superintendent stated that the bridge was useful in organizing the local response. The yard superintendent stated that his yard does not maintain an emergency response plan or list of required emergency phone numbers. He said that these items would be useful in the event of another emergency.

Rail cars containing hazardous materials should not be repaired until the nature of the hazard associated with the materials is ascertained and a responsible official determines that the repair can be made safely. Car mechanics who routinely make repairs also should be informed about the potential hazards presented by placarded cargos.

Therefore, the National Transportation Safety Board recommends that the Norfolk and Portsmouth Beltline Railroad Company:

> Provide training and reference materials to rail yard employees responsible for the repair of rail cars containing hazardous materials so that they are familiar with the potential dangers posed by these materials. (Class II, Priority Action) (R-84-1)
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> Establish procedures by which rail cars containing regulated hazardous materials will be repaired only after the hazards associated with the cargo are ascertained, and upon a determination by a responsible official that the repairs can be made safely. (Class II, Priority Action) (R-84-2)
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> Establish guidelines or recommended procedures which describe immediate actions to be take, and the organizations to be contacted for assistance in all types of hazardous materials emergencies. (Class II, Priority Action) (R-84-3)

BURNETT, Chairman, GOLDMAN, Vice Chairman, BURSLEY, ENGEN, and GROSE, Members, concurred in these recommendations.

Patricia A. Goldman

By: Jim Burnett
Chairman