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Log H-455

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: November 15, 1985

Forwarded to:

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SAFETY RECOMMENDATION(S)

H-85-44 through -46

About 4:48 a.m., m.d.t., on August 1, 1984, a tractor-semitrailer combination operated by Riss International Corporation (Riss) of Kansas City, Missouri, was traveling south on Interstate 25 (I-25) in Denver, Colorado. The flatbed semitrailer was loaded with six torpedoes, Class A explosives, which were being shipped from a U.S. Navy base in Keyport, Washington, to a Navy facility in Groton, Connecticut. The driver intended to turn east onto Interstate 70 (I-70) and was being guided by signs when she steered the vehicle to the right onto the ramp connecting I-25 to I-70. The driver then made a quick turn to the left and the trailer whipped. She applied the footbrake, saw that she had to make a left turn at the bottom of the ramp, and then released the brake and tried to steer through the curve. The tractor-semitrailer overturned onto its right side and into the center lane of I-70, slid 62 feet on its side, struck a 48-inch-high concrete safety-shape barrier, bounced off the barrier, and after sliding another 45 feet came to rest. The driver had not seen a left-turn sign and 25-mph advisory speed plate located on the right side of the exit ramp. It was cracked, glazed, and partially hidden from the approaching driver's view by tree foliage and a lamppost. 1/

The circumstance which separates any hazardous materials transportation accident from other accidents is the immediate need for specialized information, expertise, and equipment. No matter how extensive the Federal or State response network may be, it always will be the local emergency response network that must deal initially with the uncertainties of the threat. Local emergency personnel must be able to assess quickly the threat posed to public safety by the materials involved, to acquire the appropriate resources to mitigate the threat, and to have confidence in the information being received and in the ability of those who have a responsibility to assist throughout the emergency. Furthermore, local emergency response personnel perceive military explosive shipments as different qualitatively and quantitatively than civilian shipments, which influences action they take to identify the hazards presented by the cargo and to mitigate the threats.

1/ For more detailed information read Hazardous Materials Accident Report--"Overturn of a Tractor-Semitrailer Transporting Torpedoes, Denver, Colorado, August 1, 1984" (NTSB/HZM-85/02).

In this accident, the local emergency response organizations were unable to obtain authoritative information and expertise on the threat posed to the community in a timely manner. When emergency response personnel called the U.S. Department of Defense (DOD) at two telephone numbers listed on the shipping paper, about 5:15 a.m., neither telephone was answered. (Subsequent to the accident, the DOD directed that 24-hour telephone numbers be entered on shipping documents.) The fire department was also unsuccessful in contacting a local military installation and Riss; therefore, it called the Chemical Transportation Emergency Center (CHEMTREC) of the Chemical Manufacturers Association, was connected telephonically to the Naval Sea Systems Command in Washington, D.C., and a DOD emergency response was initiated. Although Riss had an emergency telephone number, local emergency responders were not aware of it. Had the Riss emergency telephone number been entered on the shipping paper, local emergency response personnel probably would have been able to reach Riss personnel as early as 5:21 a.m. Since Riss apparently relied upon the shipper's documents to satisfy regulatory requirements, Riss should require the shipper to enter the Riss emergency telephone number in addition to the shipper's telephone number(s) on those documents.

After the torpedoes were loaded onto the trailer and before leaving Keyport, the codriver called the Riss dispatcher in Kansas City, Missouri, and received highway routing instructions. The routing instructions directed the driver to take Interstate 5 south (to Portland, Oregon), Interstate 84 east (to Ogden, Utah), Interstate 80 (I-80) east (to Laramie, Wyoming), U.S. Route 287 south (to Fort Collins), Colorado State Route 14 east to I-25, I-25 south (to Denver), and then I-70 east.

The propriety of routing the vehicle through the Denver area, as well as using I-70 as the route of choice for the shipment of torpedoes is debatable. Both I-80 and Interstate 90 (I-90), the most northerly east-west interstate route, could have served as the designated route. One of the reasons stated by the Riss safety supervisor for selecting I-70 was the locations of safe havens. According to a map of safe havens used by Riss, I-70 and I-80/connecting with Interstate 65 both haveseven safe havens between Denver or Cheyenne, Wyoming, and Indianapolis, Indiana, while I-90 shows only one. Therefore, I-80 would have been just as suitable as I-70. However, neither the Riss map nor its list of safe havens included all safe havens available for the Riss safety supervisor to use in selecting routes. Furthermore, the list also included one facility used by the drivers as a safe haven prior to the accident that had not been designated as a safe haven by local or State officials at that time.

Another criterion used by Riss in selecting the route is to use interstate highways as much as possible. Accident statistics support the use of interstate highways, and interstate highways should be used for explosive shipments as much as possible. However, when selecting the designated route for this shipment, Riss failed to strictly follow its own criteria by routing the vehicle over U.S. Route 287 and Colorado State Route 14 instead of using I-80 to I-25. The noninterstate route was about 25 miles shorter.

The Safety Board investigated an accident in Houston, Texas, on May 11, 1976, involving a tractor-semitrailer (tank) transporting 7,509 gallons of anhydrous ammonia. 2/ The vehicle left a highway ramp, struck a support column of an adjacent overpass, and fell 15 feet onto a street below. The accident resulted in the release of the anhydrous

2/ Highway Accident Report--"Transport Company of Texas Tractor-Semitrailer (Tank) Collision With Bridge Column and Sudden Dispersal of Anhydrous Ammonia Cargo, I-610 at Southwest Freeway, Houston, Texas, May 11, 1976" (NTSB-HAR-77-1).

ammonia, 6 fatalities, 78 persons hospitalized, and another 100 persons treated for injuries. As a result of its investigation, the Safety Board issued Safety Recommendation I-77-1 on April 25, 1977, to the Federal Highway Administration (FHWA):

> Develop guidelines for local and State agencies to use in designating and periodically reviewing routes for the transportation of hazardous materials as a means of reducing injury and damage from accidents involving hazardous materials in their jurisdictions.

As a result of the Board's recommendation, in November 1980, the FHWA published "Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials," as an aid to local and State governments desiring to establish hazardous materials routes. Some of the listed criteria to be applied in selecting designated routes include population density, route characteristics, special populations, and emergency response capabilities.

The FHWA should encourage the States to undertake the establishment of through routes for hazardous materials, and coordinate the State's designation of those routes regionally and nationally. Once States have established through routes for hazardous materials, routes can be displayed for carrier use on any general system of road maps. Such action would eliminate the burdensome and error-prone task of carriers having to contact the various States and local jurisdictions to identify any restrictions. Until this is accomplished, Riss should evaluate the highway routes it selects to transport explosive shipments to ensure that it is using the safest and most direct routes.

Therefore, the National Transportation Safety Board recommends that Riss International Corporation:

> Enter the Riss 24-hour emergency telephone number(s) on shipping documents prepared for Class A and B explosive and other high-hazard shipments, and instruct drivers to provide the telephone number(s) to emergency response personnel in case of an accident. (Class II, Priority Action) (H-85-44)
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> Regularly update the safe haven list for Riss trucks transporting explosives to add new safe havens and to delete facilities that no longer are safe havens. (Class II, Priority Action) (H-85-45)
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> Amend the Riss procedures for selecting routes for vehicles transporting explosives to include applicable portions of the U.S. Department of Transportation (DOT) "Guidelines for Applying Criteria to Designate Routes for Transporting Hazardous Materials." Review established routes to determine if they meet the DOT and Riss safety criteria, and adhere to these safety criteria when selecting new routes. (Class II, Priority Action) (H-85-46)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility ". . . to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any action taken as a result of its

safety recommendations. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations H-85-44 through -46 in your reply.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and BURSLEY, Member, concurred in these recommendations.

By: Jim Burnett
Chairman