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NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 22, 1985

Forwarded to:

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Emergency Services
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SAFETY RECOMMENDATION(S)
I-85-16 through -18

At 8:50 a.m., on February 5, 1984, 38 cars of Seaboard System Railroad (Seaboard) freight train Extra 8294 North, consisting of 106 cars and a 4-unit locomotive, were derailed at a facing point switch near Clay, Kentucky. The derailment began when a broken truck bolster on the trailing end of the 56th car (SCL boxcar 635204) struck the closure rail of a left-hand turnout and derailed. One of the derailed cars, tank car GATX 94350, contained oleum (fuming sulfuric acid). During the derailment the trailing end of the tank car incurred a 4-inch by 1/8-inch fracture from which a small amount of acid leaked and produced light vapor clouds. A temporary plug was installed to prevent further leakage.

Two days later, as a wreckage-clearing crew contracted by the railroad was preparing to empty the oleum car, the temporary repair plug in the fracture blew out and an estimated 1,800 gallons of oleum was released and vaporized. For the following 24 hours, a 2- by 3-mile area of Bourbon County, Kentucky, was affected, forcing the evacuation of 25 families; 24 residents were treated for minor respiratory complaints. Investigation of the emergency response activities disclosed that the actions taken during this emergency failed to stabilize and reduce the risks to the public health and safety because available technical resources were not used effectively and actions taken were not directly coordinated among responding organizations. Total property damage was $582,403, including the cost of hazardous materials cleanup. 1/

Under the State plan, the State Fire Marshal or his designated representative was vested with operational responsibility for the emergency response activities. Initially, the State Fire Marshal's representative did not view the derailment as one which posed significant risks to public safety. This view may have resulted in his not maintaining a command post throughout the emergency and for not initially calling upon available expertise to assist in determining what actions should be taken to minimize threats to public safety.

1/ For more detailed information read Hazardous Materials Special Investigation Report--"Release of Oleum During Wreckage-Clearing Following Derailment of Seaboard System Railroad Train Extra 8294 North, Clay, Kentucky, February 5, 1984" (NTSB/SIR-85/01).

The initial order of the State Fire Marshal's representative that the tank car containing the oleum not be moved was correct at the time because the extent of damage to the car had not been determined. However, he gave no further consideration to his decision after inspection of the tank car revealed little likelihood of extensive damage. At that time, the hazards of rerailing the oleum car should have been reevaluated against the hazards of other alternative actions.

Upon learning that the oleum in the tank cars could not be transferred to another tank car through the tank's fittings because of the position of the tank car, the State Fire Marshal's representative declared that the transfer of the oleum from the damaged tank was a problem for Seaboard to resolve. Moreover, he did not seek any early advice from the shipper of the tank car. The shipper should be a resource of technical expertise easily identified from the shipping documents on the train and easily accessible through use of the CHEMTREC communications system. Such sources at least could have provided onscene officials a greater appreciation of the problems involved with attempts to transfer the oleum from the damaged tank car.

Also, because the State Fire Marshal did not perceive the accident as a threat to public safety and because he believed that Seaboard could safely handle the transfer of oleum, he allowed the railroad to take actions it considered necessary without his having technical knowledge of the actions to be taken. By failing to exercise complete oversight after relinquishing the responsibility of transferring the oleum to Seaboard, State agencies effectively isolated themselves from technical resources and from available onscene expertise. Additionally, because the hazards of the tapping and transfer operations were not anticipated, precautions were not taken, the transfer operations were not adequately monitored, and communications with local emergency response agencies were not maintained.

Upon deciding to transfer the oleum from the damaged tank car before uprighting it, Seaboard and its contractor developed a plan to accomplish the transfer. Neither Seaboard personnel nor its contractor developed contingency plans; nor did either caution the State Fire Marshal's representative about the potential risks or need for contingency plans in the event of a large release of oleum. Furthermore, neither requested that the shipper of the oleum be present during the tapping operation. Reducing further their ability to handle unforeseen problems concerning the transfer, the tapping procedure was begun before all necessary equipment was in place, and the tapping operation was conducted while many key representatives of Seaboard and State agencies were away from the site. It was only after the release of a large amount of oleum during the tapping operation that the acute threat to public safety was recognized and the State Fire Marshal effectively assumed control over all activities and sought outside technical assistance. A problem which had threatened public safety for about 5 days was resolved successfully within a few hours.

This accident vividly demonstrates that all derailments involving hazardous materials must be treated as life- and health-threatening emergencies until all hazardous materials have been identified, their containers have been assessed for integrity, and if necessary, the products have been removed from damaged containers or otherwise made safe. The Safety Board believes that the person in charge of emergency response activities at derailments involving the release of hazardous materials must understand that each incident is unique and poses unique problems. By using the advice of available expertise, the person in charge will be prepared better to determine that a course of action is being pursued which presents the least chance of endangering the public.

Persons charged with the management of emergency responses cannot, nor should they be expected to, know how to handle every situation. Instead, they must rely upon onscene expertise and other available technical resources to identify available courses of action and to determine the potential hazards posed to the public safety by each action. Only then can a course of action be approved. Furthermore, each action taken must be closely monitored by technical specialists to ensure that the results obtained are those anticipated and that timely warning is provided of unanticipated results so that other alternative action can be considered. Moreover, close monitoring of all onscene actions by the person in charge is required so that officials of nearby communities can be kept informed about events and prepared to assist in taking lifesaving action should evacuations be required.

Therefore, the National Transportation Safety Board recommends that the Kentucky Disaster and Emergency Services:

> Require State and local onscene commanders at the site of transportation accidents that involve hazardous materials to contact CHEMTREC promptly for information on emergency actions to be taken, and to obtain technical assistance from shippers or manufacturers of the hazardous materials in or released from damaged tank cars. (Class II, Priority Action) (I-85-16)

> Require State and local onscene commanders at the site of transportation accidents that involve hazardous materials to monitor closely the activity of public and private responders and technical advisers, so that the various response options and contingencies are understood and examined, the potential impact of proposed actions on public safety is considered, and necesary precautionary measures are taken in coordination with all involved agencies. (Class II, Priority Action) (I-85-17)

> Require that all county emergency operational plans within the State be reviewed periodically to update contingency procedures for mass casualty and hazardous materials emergencies; require that the plans be exercised periodically in drills in which all local emergency response agencies participate. (Class II, Priority Action) (I-85-18)

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 actions taken as a result of its safety recommendations, and would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

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

By: Jim Burnett
Chairman