

SP-20
R-508A

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

DEA

ISSUED: SEP 26 1985

Forwarded to:

Mr. R.K. Davidson
Vice President, Operation
Missouri Pacific Railroad Company
MoPac Building
St. Louis, Missouri 63102

Accepted
9-4-85

SAFETY RECOMMENDATION(S)

R-85-49 and -50

About 4:45 a.m., c.s.t., December 31, 1984, a switchman discovered ethylene oxide leaking from a tank car at the Missouri Pacific Railroad Company's (MOPAC) automatic retarder classification railroad yard at North Little Rock, Arkansas. Railroad officials, fearing an explosion, evacuated the yard and formulated plans to transfer the remaining ethylene oxide to an empty rail tank car. At 3:15 p.m., in anticipation of the arrival of the equipment to transfer the ethylene oxide and concern about the tank car rocketing should ignition occur, the evacuation was expanded to include an estimated 2,500 persons within a 1-mile radius of the leaking car. All rail and highway traffic within the evacuated area was stopped with the exception of traffic using Route 67-167 located in the extreme northwest quadrant of the evacuated area. After the transfer, the residual ethylene oxide was purged from the tank car with nitrogen, and the evacuation was terminated at 11:25 a.m., January 1, 1985. There were no injuries or fire. 1/

At the time of the accident, North Little Rock had no coordinated community/yard emergency preparedness procedures in effect. The lack of such procedures resulted in delayed notification of emergency response personnel (1 hour 38 minutes after the leakage was discovered) and delayed the evacuation of persons in the 1-mile evacuation zone (about 10 hours after the leakage discovery).

MoPac's emergency preparedness planning also was deficient in that it failed to provide adequate safety information or training to its employees in handling hazardous materials emergency response. Without proper protective equipment and without concern for his safety or the potential for igniting the released ethylene oxide, the switchman approached the vapor cloud and entered the area carrying a lantern capable of igniting the released ethylene oxide. Moreover, other potential sources of ignition were not immediately eliminated, and only a portion of the yard initially was closed down. The switchman reported sufficient information to yard officials to confirm that ethylene oxide was leaking from the tank car at a substantial rate, and yard officials had in their possession information about the hazards of ethylene oxide; yet action to alert and

1/ For more detailed information, read Hazardous Material Special Investigation Report--"Hazardous Materials Release, Missouri Pacific Railroad Company's North Little Rock, Arkansas, Railroad Yard, December 31, 1984" (NTSB/SIR-85/03).

protect the public and railroad employees was not taken based on this information. Instead, MoPac officials called the general car foreman to conduct a verification inspection. These actions demonstrate the need for MoPac to immediately intensify its training of employees for the actions they take during emergency conditions involving hazardous materials.

Also MoPac was deficient in providing prompt notice to the community about the emergency condition. MoPac's logic for not promptly notifying local emergency response agencies of the emergency may have been similar to that expressed by some railroad officials during the Safety Board's special investigation on railroad yard safety.^{2/} Several railroad officials related their concern about burdening local emergency response agencies and about receiving adverse media attention should they provide notice for each release of hazardous material within the railroad yard. Railroad officials testified that it is normal to experience numerous, but usually insignificant releases of hazardous materials from tank cars because of venting and improper securing by shippers of tank car appurtenances. Although the concerns of railroad officials are recognized by local emergency response officials, none expressed concern about being overburdened; rather, they stated that they would appreciate knowing promptly of such releases of hazardous materials so they could better carry out their responsibility for public safety and also use these opportunities for training response personnel, for becoming more familiar with the railroad yard, and for becoming more knowledgeable about the railroad personnel and yard response capability which they may have to depend upon in the event of a major emergency. One emergency response official stated that through improved coordination and communication between the community and the railroad yard officials, he believed that a means for accomplishing these notifications could be developed such that there would be little potential that the railroad would receive adverse media attention. The Safety Board also believes that improved coordination and cooperation between the railroads and communities can minimize adverse media attention that may result from increased notifications from railroad yards. However, regardless of any increased media attention, it is imperative that railroad yard officials promptly notify local emergency response officials about releases of hazardous materials so that necessary measures may be taken for the protection of the public.

The independent action taken by the terminal superintendent to develop an emergency plan for this yard is commendable. However, this action did not result in the development of a fully effective, coordinated emergency preparedness response plan because it failed to include the community in the initial development stages. As pointed out in the Safety Board's special investigation report on railroad yard safety, "An adequate level of community/railroad yard hazardous materials risk management implies that each entity: will have a clear idea of the risk to the community, will have knowledge of the emergency resources and procedures of the other, and will familiarize the other with their response capabilities and expectations of what is needed to reduce the risk. For all of this to occur, each entity must develop a response capability, tailor parts of it to the specific needs of the other entity, and practice these procedures to the extent possible to identify new needs or to improve upon existing practices. Doing these things only after an accident has occurred means that the opportunity to prevent loss already has been missed."

Since the accident, MoPac has proposed the installation of a 6-inch polyvinyl chloride fire main in the yard. However, the planned improvement of the fire main system leaves several factors unresolved, including an estimation of the quantity of water required during emergencies; the capability of the existing water mains to meet this

^{2/} Special Investigation Report—Railroad Yard Safety—Hazardous Materials and Emergency Preparedness" (NTSB/SIR-85/03).

demand; and the availability of hydrants near areas where emergency conditions can be anticipated, especially in the classification yard where the distance between fire hydrants would require laying the fire hose across up to 36 railroad tracks. Before these improvements are undertaken, a detailed analysis should be conducted in consultation with the fire department of the fire main needs based on potential emergencies which occur in the yard.

Therefore, as a result of its investigation, the National Transportation Safety Board recommends that the Missouri Pacific Railroad Company:

Develop, in cooperation with the communities adjacent to its railroad yards that handle bulk shipment of hazardous materials, a master railroad yard emergency response guideline for use by railroad yard personnel and the communities, and assist the communities in the development of effective procedures for responding to releases of hazardous materials within its railroad yards. The procedures should address, at a minimum, initial notification, identification of key contact personnel, response actions for the safe handling of releases of the various types of hazardous materials transported, identification of the resources to be provided, actions to be taken by the railroad and the community, and emergency drills and exercises. (Class II, Priority Action) (R-85-49)

Using its master railroad yard emergency response guideline and in coordination with communities adjacent to its railroad yards, develop local emergency and response plans appropriate to the hazards attending the conditions and operations within each of its railroad yards. (Class II, Priority Action) (R-85-50)

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.

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

By: 
Jim Burnett
Chairman