

## NATIONAL TRANSPORTATION SAFETY BOARD

### Background Paper: HAZARDOUS MATERIALS EMERGENCY RESPONSE NETWORK

Several informal inquiries have been made to National Transportation Safety Board members and personnel by officials and staff of the Department of Transportation and by other State, industry and Congressional representatives about the Safety Board's recommendation that the Secretary of Transportation supply leadership required to establish a nationwide hazardous materials emergency response network. (I-78-10) The questions raised suggest that elaboration of the rationale and implementation of this recommendation would help Board Members and staff answer questions which might arise about the network or the recommendation.

Local public safety officials are usually the first persons called on to control emergencies involving hazardous materials transportation accidents. Because of the large number of hazardous materials being shipped and the infinite range of circumstances during transportation accidents, it is unreasonable to expect all local firefighters to handle all such emergencies successfully without planning and operational assistance. The Congress has recognized this need, and has directed the Department of Transportation to establish a capability to assist local public safety officials in the handling of emergencies. In addition

to CHEMTREC, which has been established by the chemical industry, numerous organizations and agencies have published emergency handling aids for handling hazardous materials, and hazardous material training for firefighters has mushroomed. Despite these activities, the firefighters' needs have not been adequately met.

Existing aids offer only general guidance, when specific, detailed guidance is needed. The hazardous materials danger which must be controlled is extremely difficult to identify during the initial stages of a hazardous materials emergency. This danger is dependent upon the nature, quantity and form of the hazardous materials present, the nature of the packaging and any damage it may have sustained, the terrain, the environment surrounding the hazardous materials containers, and atmospheric conditions, among others. Present aids do not describe how to predict the behavior of the hazardous materials in such circumstances, and do not identify the data needed for such predictions. In part, this is attributable to the lack of understanding of hazardous material behavior in emergencies, because of the absence of adequate documentation of the lessons that could be learned from past accidents.

Thus, local public safety officials urgently need guidance from persons who can help them predict the behavior of the hazardous materials, and help them devise measures to control the outcome of the emergency.

From its investigation of accidents at Pensacola, Florida, Glen Ellyn, Illinois, Youngstown, Florida, and Waverly, Tennessee, and from its

En Banc hearing, the Safety Board has identified an approach to meet this need. Prior to the November 7, 1977 accident, Pensacola City officials convened an ad hoc emergency planning committee. This committee developed a "Pre-Fire Plan for Train Derailment and Disaster", although their planning was handicapped by the minimal information from past emergencies, and by the absence of methods for predicting how hazardous materials behavior in emergencies. When confronted with the November 7, derailment and an ammonia release, fire department officials worked with chemical experts from a local chemical plant. These chemical experts provided technical help and equipment to assist the firefighters during their emergency operations, even though the product involved was not shipped by the local company. During the emergency, firefighters received timely on-scene assistance which enabled the official-in-charge to help predict the behavior of the hazardous materials in that emergency, know what to expect if something went wrong, and determine how to intervene to achieve control of the emergency. This team gave the decisionmaker data about the condition of the tank cars, the amount and ability of the product remaining to cause further harm during the emergency, and advice about the special handling procedures and techniques that would terminate the emergency. The firefighters, with this on-scene support of the chemical experts, minimized post-derailment harm.

Similarly, in the Glen Ellyn, Illinois, derailment and ammonium release, a local chemist gave early on-scene advice to the fire chief that helped his decisionmaking during the emergency. The fire chief welcomed this technical assistance, and listened to it carefully.

During the emergency following the Youngstown, Florida, derailment and chlorine release, the Bay County Civil Defense Coordinator was assisted at the scene by a team of specially trained hazardous materials emergency handling experts from Jacksonville, Florida. Chlorine industry emergency handling experts operating - under Chlorine Institute, Inc., emergency response plans also assisted the coordinator. The Jacksonville team assisted by repairing leaks on various tank cars, advising about the dangers of wreck clearing operations, and, with help from a Bureau of Explosive expert, guided the lading transfer from the damaged liquefied petroleum gas tank car. A Jacksonville team was called to the scene by the railroad company, and provided the information and advice the coordinator needed to make his decisions during the five day emergency. The coordinator made decisions about the hazardous materials only with the concurrence of the Jacksonville team.

At Waverly, Tennessee, local fire officials were assisted by the State of Tennessee hazardous materials emergency response (HAMER) team and its communications van. This HAMER Program was established by the State and is funded in part by the Federal Highway Safety Funds. The mission of the program is to protect the public health, safety, and

property in disasters caused by hazardous materials. While the outcome at Waverly was tragic despite the best efforts of all the experts involved, at the Tennessee program reflects the State's concern about the ability of local officials to handle these unfamiliar emergencies. During the Safety Board's April 4-6 hearings into the problems of hazardous materials carriage by rail, the States of Arkansas, Illinois, and Kentucky also testified about the state programs being instituted to handle similar problems.

All these activities are being undertaken independently by local communities and states in response to the increasingly clear need of local public safety officials for a one call source of assistance, and timely assistance at the scene during the diagnostic and all subsequent stages of these hazardous materials emergencies. Without guidelines for such programs, each community and State is attempting to resolve this need unilaterally.

Tennessee experienced 476 incidents in 1977; the response experience gained by Tennessee is not being shared in communities such as Pensacola or Bay County, or in States such as Arkansas, Illinois, and Kentucky which are facing the same problems.

The opportunity for a constructive role by the Federal Government is apparent. The Department of Transportation could become a catalyst for developing transportation emergency planning and operational capabilities throughout the nation to meet his nationwide need. Since the Department of Transportation authorizes the conditions under which the hazardous materials are permitted to be transported, it should provide the leadership for achieving the safest outcome in emergencies arising during such transportation.

This leadership can take several forms. Under existing authority, the Department of Transportation could convene seminars at which States' and local communities' experience could be shared and evaluated. The Department could develop and disseminate guidelines that the States and communities could use to plan and establish operational support activities. The Department could bring about increased involvement of shippers and the establishment of training, readiness testing and post-accident evaluation of these program. Additionally, the Department could determine whether "good samaritan" relief from liability should be provided for cooperating shippers or carriers who contribute trained manpower and equipment in support of hazardous materials specialist teams. The Department could expand use of highway safety funds or other funds for the formulation of these plans and support activities. The Department could coordinate support of other Federal organizations; resources such as the Department of Energy radiological assistance capabilities, the Department of Defense ordinance disposal teams, the National Fire Prevention and Control Administration (U.S. Fire Administration after 10/1/78) research and training capabilities, the Environmental Protection Administration field resources, the National Response Team personnel and capabilities, and other Federal resources could be channeled effectively into these man-made transportation problem areas. The Department could arrange with the response teams for the collection and dissemination of reports about handling of such emergencies, and the lessons learned by these experiences. The Department could also use this information to support its regulation program.

The recommendation contemplates the establishment of a Department of Transportation program that will actively support development of specially trained local, State, or regional government/industry emergency response teams to whom local safety officials can turn for planning guidance and on-scene emergency response support for all types of hazardous materials transportation emergencies. This program could include data sharing, planning guidelines, operational support, organized shipper/carrier involvement, funding support, interagency coordination, and feedback activities. Specific support actions might include conferences, grants, program funding, planning and operational guidelines, operational support agreements, and publication of historical information on the handling of past emergencies.

Inquiries about this matter have been answered to date using the preceding rationale as guidance.

Prepared by: Bureau of Technology  
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(TE-40)  
August 3, 1978