

log# BP301B

NATIONAL TRANSPORTATION SAFETY BOARD

Washington, D.C. 20594



Safety Recommendation

Date: December 15, 1993

In Reply Refer To: P-93-15 and -16

Honorable Dorothy Morgan
Washington County Judge and
Emergency Management Director
Washington County Courthouse
105 East Main Street
Brenham, Texas 77833

On April 7, 1992, an uncontrolled release of highly volatile liquids (HVLs) from a salt dome storage cavern in the Seminole Pipeline System near Brenham, Texas, formed a large, heavier-than-air gas cloud that exploded. Three people died from injuries sustained either from the blast or in the fire. An additional 21 people were treated for injuries at area hospitals. Damage from the accident exceeded \$9 million.¹

From the testimony of pipeline employees, area residents, and community-response personnel, the Safety Board identified several failures in emergency preparedness. In this accident, if public safety officials had been quickly notified of the abnormal conditions, they could have prepared to evacuate people from the area of potential harm until the cause of the alarm had been verified. Although the MAPCO Natural Gas Liquids, Inc. (MAPCO) dispatcher's actions were in accordance with company procedures, the time wasted while he waited for the responding technician at Brenham station to verify that a release had occurred negated any opportunity for community response personnel to establish site security and control, to evacuate, or to plan for fire fighting.

A review of MAPCO's operating manual showed that despite the extremely hazardous properties of HVLs, evacuation is not listed as a precautionary measure to take prior to controlling a leak, but only as the final step to take after all attempts to control the release have failed. MAPCO's emergency procedures are primarily designed for small releases when the

¹For more detailed information, read Pipeline Accident Report--*Highly Volatile Liquids Release From Underground Storage Cavern and Explosion, MAPCO Natural Gas Liquids, Inc., Brenham, Texas, April 7, 1992* (NTSB/PAR-93/01).

responder (technician) has time to receive a call-out, proceed to the scene, determine the reason for the alarm, and notify the dispatcher. With small releases, responders usually have sufficient time to secure the area, warn area residents, and set up blockades.

The Safety Board believes that better planning would have improved coordination between MAPCO and Washington County. Investigators determined that MAPCO had given an emergency response packet to members of the Local Emergency Planning Committee (LEPC) and that none of them suggested any revisions. Following the Brenham accident, the Emergency Management Coordinator (EMC), who was also an LEPC member, testified that he was not aware of or familiar with either the pipeline company's emergency response packet or Brenham station and had not attended any training that MAPCO had conducted at the station site.

In the Brenham accident, the EMC was in charge of the overall emergency coordination, acting not only as on-scene commander, but also as emergency medical director and public information officer. Because an individual who was not familiar with the site or prior planning activities was directing operations at the accident scene, many key tasks were not accomplished in a timely manner, including identification of the released product and its hazards, determination of the risks involved, evacuation of the affected area adjacent to the site, and liaison with the pipeline operators.

Public safety officials and pipeline operators need to understand what they can expect from one another in an emergency. To ensure compatibility, the principals in this accident should consider incorporating the following elements in their emergency planning:

- o Immediate notification by the MAPCO dispatcher of all releases, regardless of the origin or size, to the Washington County Emergency Communications Center. An immediate notification could place predetermined emergency units on alert or standby for immediate response.
- o Predetermined meeting at the site for the incident commander to initially meet and exchange information with a predesignated representative of the pipeline. The information exchange would include released product information and a list of recommended emergency action options, resources, and protective equipment available to assist personnel in spill control, containment, and mitigation. At a minimum, protective equipment should include sufficient self-contained breathing apparatus, appropriate hydrocarbon gas detectors, intrinsically safe radios/communication equipment, and portable road barricades.
- o Map of the area with location of exposures and locations that can be isolated, along with predetermined road control points and evacuation routes.

- o Demonstrated ability to inform, warn, advise, or alert and, if need be, evacuate the exposed public in a timely manner.
- o At a minimum, establishment of and training for all key response personnel in the incident command system. Disaster drills should be conducted to ensure the adequacy of personnel readiness; for example, an annual tabletop exercise simulating a large release at the cavern that involves multijurisdictional public response agencies and all pipeline carriers/operators in Washington County.

Within 30 days of the Brenham accident, MAPCO formed a committee for cavern redesign, including emergency response planning and coordination with Washington County. The committee proposed a redesign of the cavern and establishment of a requirement that all employees be capable of participating in emergency response to HVL operations no matter where they occur; in doing so, it sought to comply with Occupational Safety and Health Administration (OSHA) regulations, 29 CFR 1910.9, "Process Safety Management of Highly Hazardous Chemicals." In November 1992, the committee drafted new procedures, "MAPCO's Brenham Emergency Action Plan," covering emergency planning, public emergency alerting, and MAPCO's emergency response actions in conjunction with the surrounding community's plan.

During August and September 1992, the EMC met on several occasions with various MAPCO representatives to discuss changes to the pipeline company's emergency response procedures. At the request of the local community, the company agreed to install a siren at Brenham station that can be activated by the sheriff's office dispatcher. Furthermore, the Brenham facility will be permanently manned 24-hours a day by MAPCO personnel when it becomes operational. As a result of the November 1992 public hearing, Washington County planned to conduct a multijurisdictional (Washington/Austin Counties) drill and training exercise with public response agencies to familiarize them with the recently drafted MAPCO emergency action plan and emergency warning system.

The Safety Board recognizes that the action plan is intended to improve company-county coordination. The Board would like to stress that for emergency response efforts to be effective, key personnel must be familiarized with both the county's and operator's plans, including their limitations, primarily through drills and training. Moreover, the plan does not include a timetable for implementing the OSHA training requirements for MAPCO employees or an annual drill with the public response agencies, nor does it provide assurance that the public will be evacuated in a timely fashion.

In reviewing the plan's requirements, the Safety Board notes the apparent absence of criteria for timeliness of detection, notification, and evacuation. The events and circumstances of this accident and of the North Blenheim accident show a need to develop standard procedures and guidelines for a precautionary evacuation within 1 mile of HVL facilities and to provide assurance that all HVL facilities are capable of alerting and evacuating the public in a timely fashion within 1 mile of the facility following a release. Because of the potential for widespread threats due to a release of HVL along pipelines, operators must be better prepared to serve as first responders. As this accident demonstrates, pipeline operators need to ensure timely

emergency notification, coordination, and liaison with public agencies, while also taking any immediate corrective action necessary to control a release. If a cavern emergency plan is to be effective, these deficiencies must be addressed.

Because of the potential for risk at HVL and natural gas underground storage facilities, the Safety Board believes that public safety officials, such as State and local emergency planning committees, should develop emergency response plans specific to the underground storage facilities in their jurisdictions.

Therefore, the National Transportation Safety Board makes the following safety recommendations to Washington County:


In cooperation with MAPCO Natural Gas Liquids, Inc., develop disaster plans for Brenham Station that identify conditions that warrant an evacuation, that identify the extent of the area to be evacuated, and that include procedures for carrying out an evacuation. (Class II, Priority Action) (P-93-15)

Evaluate the county's emergency disaster plan to determine whether it provides timely and effective response capabilities, site security and control, and personnel evacuation; and, if it does not, make necessary amendments. (Class II, Priority Action) (P-93-16)

Also, the Safety Board issued Safety Recommendations P-93-09 to the Research and Special Programs Administration; P-93-10 through -14 to the MAPCO Natural Gas Liquids, Inc.; P-93-17 to the Texas Department of Public Safety; P-93-18 through -20 to the American Petroleum Institute; P-93-21 and -22 to the American Gas Association; and P-93-23 to the International Association of Fire Chiefs. The Safety Board is also reiterating Safety Recommendation I-88-1 to the Department of Transportation. If you need additional information, you may call (202) 382-0672.

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 P-93-15 and -16 in your reply.

Chairman, VOGT, Vice Chairman, COUGHLIN, Members, LAUBER and HAMMERSCHMIDT concurred in these recommendations. Member HART did not participate.


By: Carl W. Vogt
Chairman