



**National Transportation Safety Board**  
Washington, D.C. 20594

**Safety Recommendation**

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Date: January 6, 1998

In reply refer to: P-97-35

Mr. M. B. Oglesby  
President  
Association of American Railroads  
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A gas explosion on November 21, 1996, in the Rio Piedras shopping district of San Juan, Puerto Rico, resulted in 33 fatalities and 69 injuries. This accident, one of the deadliest in pipeline history, made 1996 a record year for pipeline fatalities. The San Juan accident accounted for more fatalities than occurred the entire previous year, and it vividly illustrates the tragic potential of a single excavation-damaged pipe.

The National Transportation Safety Board determined that the probable cause of the propane gas explosion, fueled by an excavation-caused gas leak, in the basement of the Humberto Vidal, Inc., office building was the failure of San Juan Gas Company, Inc., to oversee its employees' actions to ensure timely identification and correction of unsafe conditions and strict adherence to operating practices; and to provide adequate training to employees.<sup>1</sup> Also contributing to the explosion was the failure of the Research and Special Programs Administration/Office of Pipeline Safety to effectively oversee the pipeline safety program in Puerto Rico; the failure of the Puerto Rico Public Service Commission to require San Juan Gas Company, Inc., to correct identified safety deficiencies; and the failure of Enron Corporation to adequately oversee the operation of San Juan Gas Company, Inc. Contributing to the loss of life was the failure of San Juan Gas Company, Inc., to adequately inform citizens and businesses of the dangers of propane gas and the safety steps to take when a gas leak is suspected or detected.

The Safety Board has long been concerned about the number of excavation-caused pipeline accidents. In response to six serious pipeline accidents during 1993 and 1994 that were caused by excavation damage and to foster improvements in State excavation damage prevention programs, the Safety Board and the Research and Special Programs Administration (RSPA)

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<sup>1</sup> National Transportation Safety Board. 1997. San Juan Gas Company, Inc./Enron Corp. Propane Gas Explosion in San Juan, Puerto Rico, on November 21, 1996. Pipeline Accident Report NTSB/PAR-97/01. Washington, DC.

jointly sponsored a workshop in September 1994.<sup>2</sup> This workshop brought together about 400 representatives from pipeline operators, excavators, trade associations, and local, State, and Federal government agencies to identify and recommend ways to improve prevention programs.

The Safety Board recently completed a safety study that analyzed the findings of the 1994 workshop, discussed industry and government actions undertaken since the workshop, and formalized recommendations aimed at further advancing improvements in excavation damage prevention programs.<sup>3</sup> Safety issues discussed in the study include the essential elements of an effective excavation damage prevention program; accuracy of information regarding buried facilities; and system measures, reporting requirements, and data collection. The discussion in this letter is limited to mandatory participation as an essential element of an effective excavation damage prevention program.

Every State except Hawaii and the District of Columbia has a damage prevention law to govern the activities of operators and excavators of most buried facilities. Texas, the most recent State to enact legislation, passed the Underground Facility Damage Prevention and Safety Act in June 1997 to establish a non-profit corporation to oversee the State's three one-call systems. The Governor of Puerto Rico is preparing damage prevention legislation for introduction in the Legislative Assembly. In the interim, he has issued an Executive Order that establishes an excavations notice center, requires government facility operators to use the center, and encourages its use by private entities.

Individual States have developed a variety of program approaches to handling the problem of excavation damage of underground facilities. A key finding in a 1995 Office of Pipeline Safety study was that there were "significant variations among state statutes, among excavators, and among facility operators in the ways that excavation around underground facilities is done."<sup>4</sup>

More than half the States (30) have mandatory one-call participation programs and most (39) are intended to protect all utilities. However, all but seven States (Connecticut, Iowa, Massachusetts, Maryland, Maine, New Hampshire, and Vermont) have granted exemptions to a variety of organizations. State laws specifically qualify their exemptions, but, in general, exempt organizations are not required to participate in the State's excavation damage prevention program. Exemptions have been granted to State transportation departments, railroads, mining operations, city/State/Federal governments, cemeteries, water utilities, military bases, and Native American Lands. Although underground facilities frequently follow road rights-of-way, nine States have current damage prevention legislation that specifically exempts State transportation

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<sup>2</sup> National Transportation Safety Board. 1994. Proceedings of the Excavation Damage Prevention Workshop. NTSB/RP-95/01. Washington, DC.

<sup>3</sup> National Transportation Safety Board. 1997. Protecting Public Safety Through Excavation Damage Prevention. Safety Study NTSB/SS-97/01. Washington, DC.

<sup>4</sup> U.S. Department of Transportation, Office of Pipeline Safety. 1995. Exemplary Practices and Success Stories in One-Call Systems. Washington, DC. May.

departments; another dozen States exempt substantial State highway maintenance activities. State highway administrators have argued that they do not have the resources for participating in notification and marking. Several States (Arizona, Arkansas, Delaware, Oregon, Mississippi, and Washington) exempt agricultural activities, home owners, and tilling operations less than 12 inches deep. By receiving exemptions, these entities are not required to inform utilities or underground facility owners of their digging activities, nor are the underground facilities operated by these exempt entities marked or protected in advance of scheduled excavations.

In the 1994 Green River, Wyoming, accident investigated by the Safety Board, a highway contractor operating excavation equipment struck a 10-inch-diameter natural gas gathering line.<sup>5</sup> The accident resulted in three fatalities. The pipeline operator did not participate in the local excavation notification one-call program, though the operator was required by the State of Wyoming to belong to the one-call system. The highway contractor notified the one-call center prior to excavation but did not notify one-call concerning project modifications that expanded the geographic area of work. Neither the Wyoming Department of Transportation nor its contractor made telephone notification directly to the pipeline operator. Had these parties participated in the one-call notification program, the gas line would have been marked and the accident likely would not have happened.

In April 1996, excavation damage of a water main in Buffalo, New York, flooded the downtown area. The municipal water department was not a member of the local one-call system. In fact, at that time four separate city utilities in Buffalo had to be notified to coordinate excavation work; none of those utilities participated in the local one-call system. This situation existed even though State law required participation and made it free for municipalities.

Panelists at the 1994 damage prevention workshop agreed that all owners/operators of buried facilities should participate in damage prevention programs; there should be no exceptions. Some States have realized the value of full participation and have taken legislative action to ensure participation. For example, according to Pennsylvania law, underground facility owners who are not one-call members cannot collect damage costs from excavators who hit their lines. A similar requirement became effective in Florida in October 1997. Oregon has mandatory one-call membership provisions for all facility owners with lines that cross public rights-of-way.<sup>6</sup>

The Safety Board agrees that the failure of all parties to participate in damage prevention programs can substantially undermine the effectiveness of the programs. When parties such as State transportation departments and railroads are given exemptions to participation in excavation damage prevention programs, these parties, in essence, are no longer obligated to use one-call notification centers to protect their facilities or to protect the facilities of others that use their rights-of-way. Nor are they obligated to inform other parties of their intent to dig or excavate. In addition to public safety interests, the Board is concerned that taxpayers ultimately

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<sup>5</sup> National Transportation Safety Board Accident Brief DCA94MP002; Green River, Wyoming; May 3, 1994.

<sup>6</sup> Underspace Bulletin 3(9): 2. June 1997. Spooner, WI: Center for Subsurface Strategic Action (CSSA).

bear the burden for these exemptions by paying for the cost of fixing excavation damage, particularly damage caused by State agencies that are not protecting their facilities. The Safety Board concludes that full participation in excavation damage prevention programs by all excavators and underground facility owners is essential to achieve optimum effectiveness of these programs.

Because of the number of State transportation department activities that are exempt from participating in excavation damage prevention programs, the Safety Board is recommending that the Federal Highway Administration require State transportation departments to participate in excavation damage prevention programs and consider withholding funds to States if they do not fully participate in these programs.

Although railroad rights-of-way are not as prevalent as those of highways, they frequently serve as ideal routes for underground facilities, particularly for gas and oil transmission lines. Contractual provisions for underground facilities to use railroad rights-of-way are a revenue source for the railroads. However, railroads are also exempt from participating in some State excavation damage prevention programs. For the larger, Class 1 railroads, there are usually internal operating procedures for notification of excavation work on railroad property. However, recent trends in contracting out construction and maintenance services suggest that not all work is controlled through internal operations. Additionally, the number of small, short line railroad companies is increasing. The Association of American Railroads estimates that there are 450-475 short line railroads; 424 are members of the American Short Line Railroad Association (ASLRA). ASLRA membership has doubled in the past 25 years. These smaller companies often do not have the resources to operate internal excavation notification systems. Consequently, the Safety Board believes that the Association of American Railroads and the American Short Line Railroad Association should urge their members to fully participate in statewide excavation damage prevention programs, including one-call notification centers.

Therefore, the National Transportation Safety Board recommends that the Association of American Railroads:

Urge your members to fully participate in statewide excavation damage prevention programs, including one-call notification centers. (P-97-35)

As a result of this safety study, the Safety Board also issued safety recommendations to the Research and Special Programs Administration, the American Public Works Association, the Federal Highway Administration, the American Short Line Railroad Association, the American Society of Civil Engineers, and the Associated General Contractors of America.

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 recommendation in this letter. Please refer to Safety Recommendation P-97-35 in your reply.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in this recommendation.

A handwritten signature in black ink, appearing to read "Jim Hall". The signature is written in a cursive style with a large, looping initial "J" and "H".

By: Jim Hall  
Chairman