# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

**Date:** June 7, 2007

**In reply refer to:** P-07-5

Mr. Ralph Izzo
President and Chief Operating Officer
Public Service Electric and Gas Company
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The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendation in this letter. The Safety Board is vitally interested in the recommendation because it is designed to prevent accidents and save lives.

This recommendation addresses your excavation damage prevention programs and emergency plans. This recommendation is derived from the Safety Board's investigation of the pipeline break, explosion, and fire in an apartment building at 30 Elm Street in Bergenfield, New Jersey, on December 13, 2005, and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has issued six safety recommendations, one of which is addressed to the Public Service Electric and Gas Company (PSE&G). Information supporting this recommendation is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.

On December 13, 2005, at 9:26 a.m., an apartment building exploded in Bergenfield, New Jersey, after natural gas migrated into the building from a damaged pipeline. Safety Board investigators found a break in a 1 1/4-inch steel natural gas distribution service line that was operating at 11 1/2 pounds per square inch, gauge. The break occurred at an underground threaded tee connection downstream from where excavators were removing an oil tank that was buried under the asphalt parking lot adjacent to the building. The break occurred, under the parking lot, about 7 feet 4 inches from the building's wall. Three residents of the apartment building were killed. Four residents and a tank removal worker were injured and transported to hospitals.[1]

[1] For additional information, see *Natural Gas Service Line Break and Subsequent Explosion and Fire, Bergenfield, New Jersey, December 13, 2005*, Pipeline Accident Brief NTSB/PAB-07/01 (Washington, DC: NTSB, 2007).

The National Transportation Safety Board determined that the probable cause of the December 13, 2005, natural gas explosion and fire in Bergenfield, New Jersey, was the failure of the American Tank Service Company to adequately protect the natural gas service line from shifting soil during excavation, which resulted in damage to the service line and the release and migration of natural gas into the apartment building. Contributing to the accident was the failure of the Public Service Electric and Gas Company to conduct effective oversight of the excavation activities adjacent to the gas service line and to be prepared to promptly shut off the flow of natural gas after the service line was damaged. Contributing to the casualties in the accident was the failure of the Bergenfield Fire Department to evacuate the apartment building despite the strong evidence of a natural gas leak and the potential for gas to migrate into the building.

On December 12, 2006, after discovering that the oil tank to be excavated was larger than expected, the American Tank Service Company (American Tank) crew recognized that excavation of the larger tank posed a risk to the natural gas service line. Consequently, the American Tank crew foreman asked a PSE&G inspector if the gas service line could be shut off as a precaution to prevent the release of gas if the service line was damaged during the tank removal. The PSE&G denied the request because there was no prior notice and the cold weather required the apartment building to remain heated to protect the residents, and the inspector took no further action.

The PSE&G inspector recommended either shoring the trench or supporting the pipe against an immovable object such as the building. However, he did not remain on scene to ensure that protective measures were taken and that the service line was not damaged, and he did not test the curb shut-off valve to ensure that it could be rapidly closed to stop the flow of gas to the apartment building in case an emergency shutdown of the service line became necessary. He gave the American Tank foreman his business card and asked him to call if he had any questions. The PSE&G inspector should have recognized that this was a potentially hazardous situation and should have been more proactive in providing input to American Tank on how to properly protect the service line.

For example, the PSE&G inspector could have discussed with American Tank workers specific techniques for shoring the trench or how to properly support a service line with pipe hangers. The PSE&G inspector also could have provided information as to when it might be possible to shut off the gas line. Because of the potentially hazardous situation, the PSE&G should have tested the valve to be sure it worked and could have stationed a worker at the curb shut-off valve to the service line during the excavation in the event the service line was damaged. Finally, a coordinated plan of action involving American Tank and PSE&G personnel should have been developed in case there was an emergency.

The PSE&G's first responder to the gas leak reported that he tried to shut off the gas at the curb valve but he was unable to turn the valve. The PSE&G's emergency plan did not have a provision requiring testing of curb valves before excavation to determine whether they could be quickly operated to shut down a service line where a potential pipeline failure could occur due to excavation damage. The Safety Board notes that Federal regulations require pipeline operators to have damage prevention programs that provide for inspection of pipelines during and after excavation activities to verify the integrity of the pipeline whenever the operator has reason to

believe the pipeline could be damaged by excavation activities (49 *Code of Federal Regulations* [CFR] 192.614(c)). Federal regulations also require operators to have an emergency plan that addresses emergency shutdown and pressure reduction in any section of the pipeline necessary to minimize hazards to life and property (49 CFR 192.615(a)).

The Safety Board concludes that the PSE&G did not sufficiently monitor American Tank's excavation activities to protect the PSE&G's service line and the PSE&G failed to plan for emergency actions in the event its service line was damaged during excavation.

Therefore, the National Transportation Safety Board makes the following safety recommendation to the Public Service Electric and Gas Company:

> Modify your excavation damage prevention program and emergency plan to require site-specific risk assessments of excavators' plans, and implement procedures to effectively manage the risk, such as increased surveillance of excavator actions to protect the pipeline and ensuring that gas shut-off valves are tested so that they can be closed promptly if the pipeline is damaged. (P-07-5)

The Safety Board also issued safety recommendations to the Pipeline and Hazardous Materials Safety Administration, the New Jersey Department of Community Affairs, the Borough of Bergenfield, the American Tank Service Company, and the International Association of Fire Chiefs. In your response to the recommendation in this letter, please refer to Safety Recommendation P-07-5. If you need additional information, you may call (202) 314-6177.

Chairman ROSENKER, Vice Chairman SUMWALT, and Members HERSMAN, HIGGINS, and CHEALANDER concurred in this recommendation.

[*Original Signed*]

By: Mark V. Rosenker
Chairman