National Transportation Safety Board

Washington, D.C. 20594

Office of Railroad, Pipeline and Hazardous Materials Investigations

Investigator-in-Charge's Accident Summary

NTSB Accident #PLD23LR002
Natural Gas-Fueled Explosion and Fire
March 24, 2023, West Reading, Pennsylvania

On Friday, March 24, 2023, at 4:55 p.m. Eastern Standard Time, a natural gas–fueled explosion and fire occurred at R. M. Palmer Company (Palmer) candy factory Building 2 at 17 South 2nd Avenue in West Reading, Pennsylvania. The explosion destroyed Building 2 and caused significant structural damage to the adjacent Building 1 and other surrounding structures. (See figure 1.). Seven employees were killed, 11 people were injured, three households were displaced from a neighboring apartment building, and many more people were evacuated from the area.

At the time of the explosion, about 35 office staff and 70 production employees were working in both buildings. Palmer employees from Building 2 recalled that they were sanitizing equipment in the building when they detected an odor of natural gas. The employees in Building 1 recalled the smell of rotten eggs around the same time. Urban Search and Rescue and assisting first responders, including the West Reading Fire Department completed search and rescue efforts. After the explosion, emergency response units from the West Reading Borough were joined by multiple emergency responders from adjoining communities to put out the fire and to conduct search and rescue efforts until the evening of March 26, when the last employee was accounted for.

UGI Corporation (UGI) provided natural gas service to the Palmer buildings through two natural gas mains adjacent to the accident site. One 4-inch-diameter steel main was located in front of Building 2 along South Second Avenue, and one 1-1/4 inch-diameter Aldyl A plastic main was located along Cherry Street between Buildings 1 and 2. The gas service was operating at 53 pounds per square inch gauge pressure at the time of the failure.

Following the accident, NTSB investigators examined the site where the explosion and fire occurred, gathered information, and conducted interviews. Mechanical and visual examination indicated that natural gas was leaking from a DuPont Aldyl A service tee that was installed in 1982. UGI exposed and retired the service line that was connected to this service tee in 2021 when they relocated the natural gas meter from the basement to the exterior of Building 2. After the service line was retired, the 1982 service tee remained connected to the natural gas system,

pressurized at full system pressure. As part of the meter relocation project, UGI installed a new service tee (2021 service tee) and a new service line. The 1982 service tee was less than 2-feet from a subsurface infrastructure that ran between Palmer Buildings 1 and 2, including a steam, a condensate, and several heated chocolate pipelines. NTSB investigators observed general corrosion and a crack in the steam line when it was exposed on-scene.

Further examination of the 1982 service tee by the NTSB's Materials Laboratory revealed that the tower, which houses the service tap, consisted of an outer shell and a Dupont Delrin® insert that was fractured in the transverse direction near its base. The upper portion of the insert was not recovered. The outer shell had a longitudinal fracture that started near the top of the tower and extended toward the tower base. Fractographic examination indicated that the fracture in the tower started on its inner diameter surface.

Parties to the investigation include the Pipeline and Hazardous Materials Safety Administration, the Pennsylvania Public Utility Commission, Pennsylvania State Police, the West Reading Police Department, the West Reading Fire Department, the Berks County Fire Marshal, R.M. Palmer, and UGI.

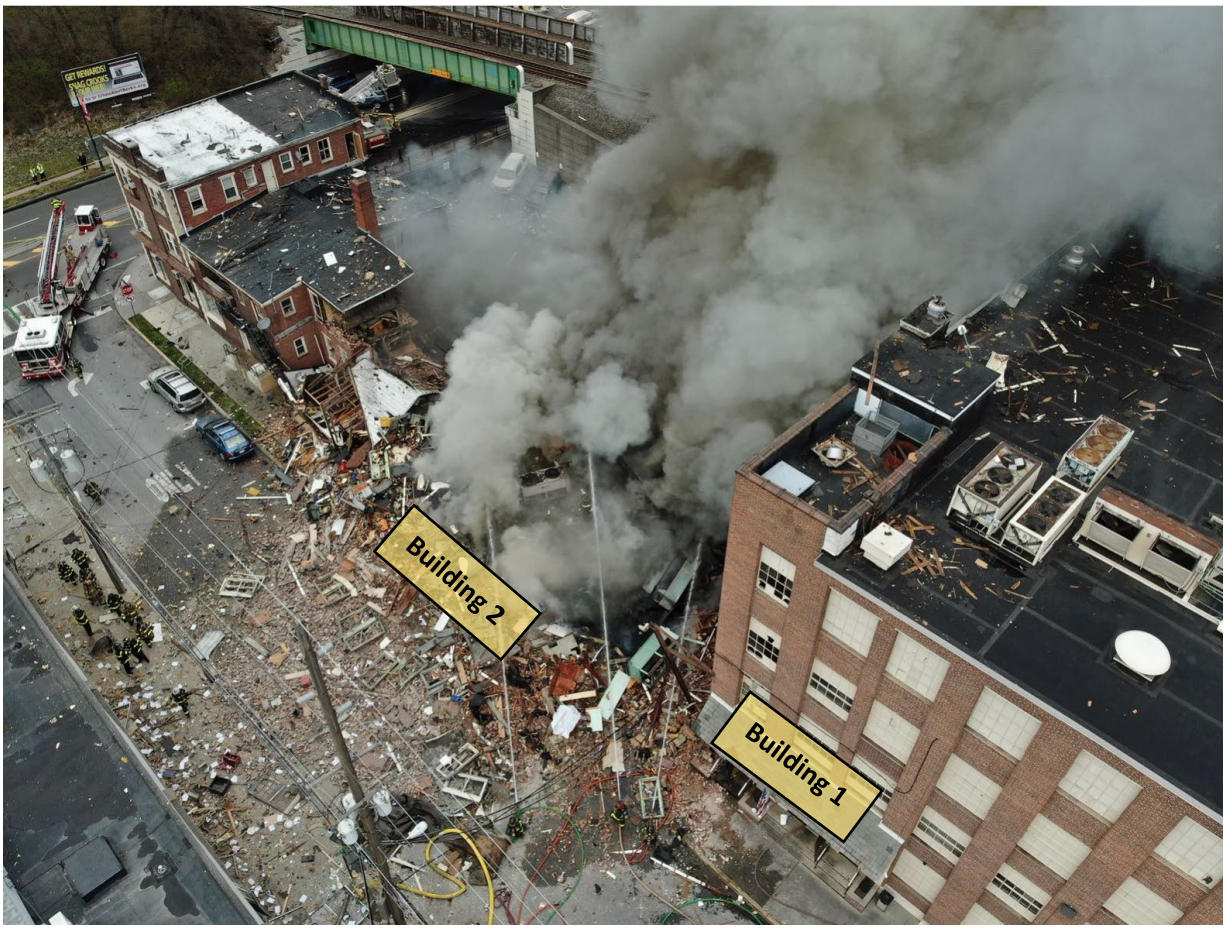

Figure 1. Post-accident aerial photo of accident site with Buildings 1 and 2 identified. Photograph taken on March 24, 2023. (Courtesy of the Western Berks Fire Department) *[**508 text:** Photo displays aerial view of accident site following the explosion, including buildings 1 and 2.]*