



PRELIMINARY REPORT

PIPELINE

PG&E Third-Party Natural Gas Line Strike and Fire

San Francisco, California
February 6, 2019
PLD19MR001

The information in this report is preliminary and will be either supplemented or corrected during the course of the investigation.

On February 6, 2019, about 1:15 p.m. Pacific standard time, a third-party contractor, Kilford Engineering, Inc. (Kilford) that was excavating for fiberoptic conduit installation, damaged a Pacific Gas & Electric Corporation (PG&E) 2-inch natural gas main at the connection to a 4-inch main.¹ The release of gas and its subsequent ignition led to a fire. (See figure 1.) The event occurred in the Richmond district of downtown San Francisco, California, at the intersection of Geary Boulevard and Parker Avenue, a busy thoroughfare. There were no injuries or fatalities; however, the natural gas service to 328 customers was curtailed temporarily, and about 100 people were evacuated by the San Francisco Police Department.² At the time of the release, the sky was clear; the wind was from the east-northeast about 10 mph, and the temperature was 52°F.



Figure 1. Emergency responders at the accident location. (Photograph by Santiago Mejia, *The Chronicle*.)

¹ All times in this report are approximate Pacific standard time.

² *Curtailed* is the official term used by natural gas distribution companies and means cut off entirely. *Temporary curtailment* is when the gas is cut off entirely but later restored.

In response to the fire, the San Francisco Fire Department (SFFD) and PG&E set up a unified incident command. SFFD focused on containing the fire and minimizing its spread, using four working groups to surround the burning building until PG&E could isolate and shut down the gas line, removing the fuel source. The isolation of the affected segment required turning off six street-level valves located at various points in the area and mechanically squeezing off the 4-inch polyethylene main.

During the 2 hours that elapsed while PG&E personnel isolated the flow of natural gas to the affected segment, SFFD cordoned off the area, applied water to the flames, and provided a water curtain to ensure the fire did not spread beyond the adjacent building, the only building condemned as a result of the fire.

On the day of the fire, Kilford was installing multiple segments of 3-inch conduit to accommodate fiberoptic cabling along Geary Boulevard at Parker Avenue. Kilford had five employees at the site; three were assigned to a different area along the sidewalk about 90 feet from the origin of the gas release while the remaining employees were assigned to the excavation area where the breach occurred. The work included excavation by a mini motorized excavator with a bucket, as well as a laborer with a hand shovel who acted as the spotter for the excavator operator.

At the accident location, the excavated area contained a 4-inch polyethylene main that ran parallel to Geary Boulevard, with a 2-inch polyethylene branch connection that tied into the 4-inch main and ran parallel to Parker Avenue. The operating pressure of the system was 47 pounds per square inch, gauge (psig), with a maximum allowable operating pressure of 60 psig.

To access the pipe, workers had to remove the concrete that covered the area. Once the concrete was jackhammered into pieces, the debris was removed for off-site disposal, and the soil was removed with the mini excavator and a hand shovel. At the time of the gas release, the mini excavator was positioned at the edge of the excavation with the bucket extended within inches from the area of the breach. Because of the delay between the release, indicated by audible and visual cues, and ignition (estimated by witnesses to be less than 10 seconds), all five employees avoided injury because they were far enough away from the breach point before ignition occurred.

The 2-inch section of pipe removed at the site was deformed consistent with an impact from an outside force. Furthermore, the screwed cap on the 2-inch branch was torn from the assembly in a manner consistent with outside force impact as can be seen in figure 2.



Figure 2. Postaccident damaged pipe. (Photograph courtesy of PG&E)

About 20 minutes after the fire started, a PG&E Gas Maintenance and Construction crew began excavation on the 4-inch polyethylene main; this work was completed about an hour later. About 3:05 p.m., PG&E Gas Pipeline Operations and Maintenance employees closed the first valve. The final valve was closed about 3:35 p.m., and the gas-fueled fire was extinguished shortly after 3:38 p.m.

After the gas-fueled fire was extinguished, SFFD began work to contain and control the building fires started by the initial fire. PG&E replaced the damaged portion of pipeline with like

materials and began work to purge and restart the line. By 10:00 p.m. the following day, all services were either relit, or one attempt to relight had been made.³

The National Transportation Safety Board investigation is ongoing. Future investigative activity will focus on the third-party contractor's preparedness and qualifications to perform the excavation work and the execution of PG&E and local fire and police department emergency response plans. Investigators will review and assess applicable rules and standards of oversight agencies for effectiveness.

Parties to the investigation include the California Public Utilities Commission, Pipeline and Hazardous Materials Safety Administration, California Underground Facilities Safe Excavation Board (Dig Safe Board), Pacific Gas & Electric Corporation, and San Francisco Fire Department.

³ PG&E was unable to relight some services at that time because it could not enter residences when no one was home.