



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

---

**Date:** June 8, 2011

**In reply refer to:** P-11-3

Mr. Christopher Johns  
President  
Pacific Gas and Electric Company  
Post Office Box 770000  
Mail Code B32  
San Francisco, California 94177

---

The National Transportation Safety Board (NTSB) 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 NTSB is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

The safety recommendation in this letter addresses emergency response plans, in particular, communications with a 911 emergency call center in the event of a pipeline emergency. The recommendation is derived from the NTSB's ongoing investigation of the September 9, 2010, rupture in San Bruno, California, of a natural gas transmission pipeline owned and operated by Pacific Gas and Electric Company (PG&E) and is consistent with the evidence we have found and the analysis we have performed to date.

On September 9, 2010, about 6:11 p.m. Pacific daylight time,<sup>1</sup> a PG&E 30-inch-diameter underground natural gas transmission pipeline (which is identified by PG&E as Line 132), ruptured in a residential area in San Bruno, California. The accident killed eight people, injured many more, and caused substantial property damage. The rupture on Line 132 occurred near mile point 39.28, at the intersection of Earl Avenue and Glenview Drive in San Bruno. About 47.6 million standard cubic feet of natural gas were released as a result of the rupture. The released natural gas was ignited after the rupture; the subsequent explosion created a crater about 72 feet long by 26 feet wide, and the resulting fire destroyed 38 homes and damaged 70. A ruptured pipe segment about 28 feet long was found about 100 feet away from the crater.

The NTSB has learned in the course of the investigation that the Supervisory Control and Data Acquisition system alarmed within 4 minutes of the rupture, which alerted the gas system

---

<sup>1</sup> All times mentioned in this letter refer to Pacific daylight time, unless otherwise specified.

operators of a possible line break by showing a significant pressure drop at the nearest downstream terminal and decreasing pressures on adjacent interconnected lines. Yet, call-in telephone notifications were made to the dispatch center 7 minutes and 11 minutes after the rupture by two off-duty employees and not the gas control center. The PG&E dispatch center responded to those calls, about 12 minutes after the rupture, by sending a gas service representative (a technician who responds to leaks and is not authorized to close a transmission pipeline valve) to the accident scene to confirm the information being relayed. The dispatch center told the gas control center about the fire and general location of the accident 16 minutes after the rupture. The gas control operators immediately made the connection between the alarms, pressure trends, and dispatch information. During this crucial period, no calls were made from the PG&E gas control or dispatch centers to local emergency services to notify the fire department and first responders, who had arrived on scene within 3 minutes of a 911 call reporting the event.

PG&E operates and monitors the pipeline through the gas control center and responds to emergencies relayed by the dispatch center; both centers have separate and different roles and responsibilities. PG&E procedures for handling emergency conditions reported by outside agencies and company personnel on high or low gas pressure events<sup>2</sup> require a field employee to be dispatched to the gas incident location. This procedure requires the field employee to evaluate the danger to life and property, assess damage, and make or ensure that conditions are safe. The procedure also requires field personnel to notify a field service supervisor, a dispatcher, a gas maintenance and construction supervisor, or an on-call gas supervisor.

As required by PG&E's emergency response plan, the dispatch center sent an employee to investigate the reported fire. Two off-duty employees who saw television coverage of the accident were called to respond while en route to obtain valve shutoff tools. They closed the upstream valve 79 minutes after the rupture. These two employees also closed the second and third valves, which were located about 1 1/2 miles downstream of the first valve, 15 minutes later.

A pipeline operator's prompt notification to the local emergency response agencies through a 911 emergency call center can be crucial to the success of the emergency response effort and protection of the public. Even in the case of a smaller, slower leak that does not immediately ignite, when the pipeline operator has immediately notified local emergency response authorities of the leak, the emergency responders are aware of a prospective serious problem, can mobilize the needed response resources and are better able to recognize quickly the symptoms of a potential serious gas leak threat.

PG&E emergency response procedures address leaks and ruptures as the same type of event, requiring a PG&E employee to assess the on-scene conditions before taking emergency actions. This policy unnecessarily delays the response to a catastrophic rupture of a transmission pipeline. Had PG&E notified emergency responders of the suspected rupture, the first responders could have communicated to PG&E the catastrophic nature of the rupture. PG&E could have used this information to spur a more aggressive effort to isolate the rupture. Also, had PG&E

---

<sup>2</sup> High or low gas pressure events include breaks in gas transmission lines operating at 60 pounds per square inch, gauge, or greater.

communicated to emergency responders the magnitude of the fuel supply and the estimated time required to isolate and stop the release, first responders could have used that information to plan evacuations, order resources to the scene, and design a response for the protection of life and property.

The NTSB is concerned that PG&E's procedures, which do not require control room operators to immediately notify the applicable 911 emergency call center in the event of a possible pipeline rupture, can adversely affect the timeliness and effectiveness of the emergency response effort. Therefore, the National Transportation Safety Board makes the following safety recommendation to the Pacific Gas and Electric Company:

Require your control room operators to notify, immediately and directly, the 911 emergency call center(s) for the communities and jurisdictions in which your transmission and/or distribution pipelines are located, when a possible rupture of any pipeline is indicated. (P-11-3)

NTSB investigators are still examining many issues related to the San Bruno pipeline rupture. At this time, the NTSB has not yet determined the probable cause of the accident. Nonetheless, the investigation has revealed the safety issue and recommendation described above, which should be addressed immediately. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.

In response to the recommendation in this letter, please refer to Safety Recommendation P-11-3. If you would like to submit your response electronically rather than in hard copy, you may send it to the following e-mail address: [correspondence@ntsb.gov](mailto:correspondence@ntsb.gov). If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our secure mailbox procedures. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Chairman HERSMAN, Vice Chairman HART, and Members SUMWALT, ROSEKIND, and WEENER concurred in this recommendation.

*[Original Signed]*

By: Deborah A.P. Hersman  
Chairman