



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: October 27, 2009

In reply refer to: P-09-6 through -8

Mr. Jim Collingsworth
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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 recommendations in this letter. The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

The recommendations address the adequacy of the Dixie Pipeline Company (Dixie) public education program. The recommendations are derived from the NTSB's investigation of the November 1, 2007, rupture in Carmichael, Mississippi, of the liquid propane pipeline operated by Dixie and are consistent with the evidence we found and the analysis we performed. As a result of this investigation,¹ the NTSB has issued eight safety recommendations, three of which are addressed to Dixie. Information supporting these recommendations is discussed below. The NTSB would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

On November 1, 2007, at 10:35:02 a.m.,² central daylight time,³ a 12-inch-diameter pipeline segment operated by Dixie was transporting liquid propane at about 1,405 pounds per square inch, gauge, when it ruptured in a rural area near Carmichael, Mississippi. The resulting

¹ For additional information, see <<http://www.nts.gov/publictn/2009/PAR0901.pdf>>. *Rupture of Hazardous Liquid Pipeline With Release and Ignition of Propane, Carmichael, Mississippi, November 1, 2007*, Pipeline Accident Report NTSB/PAR-09/01 (Washington, DC: National Transportation Safety Board, 2009).

² The times associated with events indicated in hours:minutes:seconds are from either the Supervisory Control and Data Acquisition system or the 911 system.

³ All times are central daylight time except where otherwise noted.

gas cloud expanded over nearby homes and ignited, creating a large fireball that was heard and seen from miles away. About 10,253 barrels (430,626 gallons) of propane were released. As a result of the ensuing fire, two people were killed and seven people sustained minor injuries. Four houses were destroyed, and several others were damaged. About 71.4 acres of grassland and woodland were burned. Dixie reported that property damage resulting from the accident, including the loss of product, was \$3,377,247.

The first 911 call received at Clarke County Central Dispatch came in at 10:39:56 a.m. The call was from a person calling from a house at 4195 County Road 621. The caller reported that a gas explosion had occurred somewhere around the area and that smoke and gas surrounded the house. When asked if there was fire, the caller said that she did not see any fire but she saw white gas and smelled gas. The 911 operator told the caller that an emergency responder would be sent. The operator did not tell the caller to get out of the house and run away from the smoke. The call lasted 1 minute 20 seconds. The house at this address was subsequently identified as the house in which one of the two fatalities was discovered.

The NTSB determined that the probable cause of the November 1, 2007, rupture of the liquid propane pipeline operated by Dixie Pipeline Company near Carmichael, Mississippi, was the failure of a weld that caused the pipe to fracture along the longitudinal seam weld, a portion of the upstream girth weld, and portions of the adjacent pipe joints.

Dixie used American Petroleum Institute Recommended Practice 1162 (API RP 1162), *Public Awareness Programs for Pipeline Operators*, as a model for the content and organization of its public education program. API RP 1162 contains specific guidance about the development of public awareness programs directed to the general public and training and outreach programs directed to emergency response agencies. API RP 1162 also defines stakeholder audience, includes information to be disseminated to the stakeholder audience, discusses message delivery methods and enhancements to a baseline public awareness program, and describes program documentation, record-keeping, and evaluation. Regarding training and outreach programs for emergency response agencies, section 3.2 of API RP 1162 lists examples of emergency officials and stakeholders that pipeline operators should invite to participate in this program. The recommended list of stakeholders includes fire departments, police and sheriff's departments, members of local emergency planning committees, and county and state emergency management agencies. However, 911 emergency call and dispatch centers and emergency communications agencies are not identified in API RP 1162 as stakeholders.

The core element of Dixie's public awareness program was the distribution of safety literature to identified stakeholders that include residents, businesses, emergency response agencies, excavators, and public officials. Under the program, Dixie, through its contractor, mailed pipeline public awareness and safety literature each year to all emergency response officials and excavators in the county, every 2 years to the residents and businesses within 1 mile of either side of the pipeline, and every 3 years to public officials within the county. After the accident, Dixie discovered that 10 addresses on County Road 621 were missing from the mailing data used for the May 2007 distribution of *A Public Service Message—Pipeline Safety is*

Everyone's Responsibility; the 10 addresses included the houses of the two fatalities and the houses and one business on County Road 621 that were destroyed or most heavily damaged in the Carmichael accident.

Dixie has told investigators that since the accident, its contractor has corrected the mailing data. Also, Dixie planned a second mailing to all stakeholders, including those that had been missed previously. These actions are responses to specific problems identified in Dixie's public education program and cannot be considered as active oversight of its program. Before the accident, Dixie relied upon its contractors to obtain accurate mailing data and ensure the mailings to the public were completed. Dixie did not perform oversight to ensure that all appropriate recipients were on the mailing lists and that the mailings met its requirements and those of API RP 1162, nor did it initiate actions to evaluate the effectiveness of the program. For example, Dixie did not conduct customer surveys to verify that the mailing lists were complete, that mailings had been received, and that customers understood the guidance contained in the safety literature mailed to them. Without such efforts, Dixie could not accurately assess the effectiveness of its public awareness program as required under federal pipeline standards (Title 49 *Code of Federal Regulations* Parts 192 and 195) and API RP 1162.

Under its Government Liaison-Emergency Response Program, Dixie conducted, through a technical contractor, periodic familiarization events. These events were for fire and rescue departments, law enforcement, members of local emergency planning committees, and regional emergency management and support organizations, such as the Red Cross, in the eight Mississippi and Alabama counties in which Dixie had pipeline facilities.⁴ However, emergency services communications agencies, such as 911 emergency call and central dispatch centers, were not specifically identified as stakeholders in Dixie's public education program plan.

Clarke County Central Dispatch emergency 911 personnel did not receive familiarization training sponsored by Dixie that specifically covered the operation of a propane or other large pipeline, nor did they receive Dixie's booklet, *A Guideline for Emergency Response Agencies*, or two other safety publications that Dixie routinely distributed to emergency response agencies. Further, the initial training and qualification of Clarke County Central Dispatch operating personnel does not address pipeline emergencies. Clarke County Central Dispatch personnel also have not participated in drills and exercises simulating a propane pipeline rupture, a substantial product release, and subsequent ignition and fire. In the 3 years before the accident, Clarke County Central Dispatch personnel had not participated in the emergency responder outreach program conducted or sponsored by Dixie.

Dixie's outreach program to emergency response agencies provided opportunities for emergency responders in Clarke County and neighboring counties to receive familiarization training and participate in exercises related to the propane pipeline so that they would be prepared in case of accident or emergency. In addition, the safety literature and guidance that training participants and invitees received contained important information about the hazards of propane and actions to protect the public and emergency responders. These materials also

⁴ Dixie's pipelines ran through Clarke, Jasper, Kemper, Lauderdale, Neshoba, Newton, and Scott Counties in Mississippi and Choctaw County in Alabama.

contained specific guidance that 911 operators could use to recognize the signs of a massive propane release and the information to give to callers so they can avoid danger during such a release. Dixie did not identify central dispatch centers, such as Clarke County Central Dispatch, as stakeholders and participants in its outreach program for emergency response agencies. In the 3 years before the Carmichael accident, employees of the Clarke County Sheriff's Department, the County Emergency Management Agency, and the Carmichael Volunteer Fire Department attended Dixie's emergency response training sessions, but Clarke County Central Dispatch was not included in the list of attendees to this type of session and the Clarke County 911 operators did not attend. API RP 1162, the pipeline industry's standard for public education programs, did not identify central dispatch centers as organizations to contact although Dixie, as a regional pipeline operator, had the responsibility to identify and offer training to the appropriate emergency response agencies in those regions in which it operates. Had personnel from Clarke County Central Dispatch participated in Dixie's periodic familiarization training or received the guidance to 911 operators, they may have promptly recognized that the information initially reported indicated a massive propane release in the area and would have been better prepared to address it. Such actions may have included warning callers to avoid ignition sources and telling them to immediately evacuate the area.

Because addresses were omitted from public awareness mailing lists and 911 operators were not invited to attend the outreach program for emergency responders, the NTSB concludes that Dixie Pipeline Company's oversight and evaluation of the effectiveness of its public education programs were inadequate.

As a result of its investigation, the National Transportation Safety Board makes the following recommendations to Dixie Pipeline Company:

Take measures to determine that all residences and businesses within your operating regions are included on your mailing list and receive mailings of safety guidance information. (P-09-6)

Implement procedures to evaluate the effectiveness of your public education program. (P-09-7)

Verify that all 911 emergency centers within your operating regions are included on your mailing list, invited to participate in operator-sponsored training activities, and receive mailings of safety guidance information. (P-09-8)

The NTSB also issued safety recommendations to the Pipeline and Hazardous Materials Safety Administration, the Clarke County Board of Supervisors, and the American Petroleum Institute. In response to the recommendations in this letter, please refer to Safety Recommendations P-09-6 through -8. 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. If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our secure mailbox. 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 Member SUMWALT concurred in these recommendations.

[Original Signed]

By: Deborah A.P. Hersman
Chairman