



PRELIMINARY REPORT

PIPELINE

Enbridge Inc. Natural Gas Pipeline Rupture and Fire

Danville, Kentucky
August 1, 2019
PLD19FR002

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

On August 1, 2019, at 1:23 a.m. local time, a 30-inch-diameter natural gas transmission pipeline owned and operated by Enbridge Inc. (Enbridge) ruptured near Danville, Lincoln County, Kentucky, about 35 miles southwest of Lexington, Kentucky. The rupture released about 66 million cubic feet of natural gas which ignited, resulting in the death of 1 person, the hospitalization of 6 people and the evacuation of 75 residents from the Indian Camp mobile home park. The fire destroyed 5 nearby residences, damaged 14 other residences, and burned about 30 acres of land including railroad tracks owned and operated by Norfolk Southern Corporation. (See figure.) As a result of the explosion, a 33.2-foot-long section of the pipeline was ejected and landed about 481 feet southwest of the rupture site.



Figure 1. Postrupture aerial view of the accident area. (Photo overlaid on Google Earth image.)

Initial data provided by Enbridge from its gas control center in Houston, Texas, showed that a rate-of-change gas pressure alarm was received at 1:24 a.m. for Line 15 on the south side of the Danville compressor station. The Danville compressor station operator also received the alarm. The operator told investigators he could see the fire from the compressor station. In response to the accident, Enbridge personnel isolated the affected pipeline segment while the Lincoln County Fire Protection District worked to evacuate residents and minimize the spread of the fire. The isolation of the affected segment required closing one valve at the Danville compressor station, located 3.5 miles north of the rupture, and manually closing another valve located about 19 miles south of the Danville compressor station. Enbridge personnel isolated the ruptured pipeline at 2:19 a.m. The natural gas fire was reported under control by emergency responders at 2:56 a.m.; fire suppression of the surrounding area ended at 3:20 a.m.

At the accident location, there are three Enbridge pipelines that transport natural gas from Pennsylvania to Mississippi through a common corridor. The ruptured pipe was produced by A.O. Smith Corporation and placed into service in 1957. The pipe had an electric flash-welded seam and was coated with coal tar. The rupture occurred near pipeline milepost (MP) 423.4. The portion of Line 15 at the rupture site consists of 0.375-inch wall thickness steel pipe, with a maximum allowable operating pressure of 936 pounds per square inch, gauge (psig). When first constructed, gas in Line 15 flowed south-to-north; however, in 2014 Enbridge reversed the gas flow to north-to-south.¹ At the time of the rupture, gas in Line 15 was flowing north-to-south and was operating at 925 psig. The area in which the rupture occurred had not been designated by Enbridge as a High Consequence Area (HCA).²

In 2011, Enbridge performed an in-line inspection of Line 15 to evaluate pipeline material properties. Enbridge performed additional in-line inspections in 2018 and 2019 to evaluate pipeline geometry. Investigators are reviewing and reassessing the in-line inspection data from the area of the rupture.

On August 8, 2019, as a result of the accident, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a corrective action order to Enbridge.³ In response to the rupture, Enbridge has isolated and shut down all three pipelines in the area of the accident. Line 15 will be isolated from the adjacent pipelines from Mississippi to Pennsylvania and will operate at or below 80 percent of normal operating pressure until the terms outlined in the PHMSA corrective action order are met, and PHMSA approves Line 15 to return to full service.

¹ At the rupture location, a south-to-north gas flow corresponded to gas flow from the Tompkinsville pumping station to the Danville pumping station.

² According to the U.S. Department of Transportation on-line glossary an HCA is “a location that is specially defined in pipeline safety regulations (Title 49 *Code of Federal Regulations (CFR)* Chapter I, Subchapter D “Pipeline Safety”) as an area where pipeline releases could have greater consequences to health and safety or the environment.” <https://primis.phmsa.dot.gov/comm/glossary/index.htm?nocache=6456#ASTMInternational>. Accessed August 20, 2019.

³ As described in 49 *CFR* 190.233, *corrective action orders* identify the specific corrective actions an operator must take to address conditions that PHMSA considers hazardous to people, property, or the environment. For additional information, see <https://www.phmsa.dot.gov/news/enbridgetexas-eastern-transmission-ordered-take-certain-corrective-actions-august-1-2019>. Accessed August 20, 2019.

Line 15 previously ruptured on November 2, 2003, in Moorhead, Kentucky, releasing about 167,100 million cubic feet of natural gas which ignited. No fatalities or injuries occurred in that accident.⁴ The rupture was located at MP 501.72, about 78 miles north of the Danville, Kentucky, rupture. The National Transportation Safety Board (NTSB) did not investigate the 2003 rupture.

The NTSB investigation is ongoing. While on scene, investigators collected sections of the pipeline for metallurgical analysis and testing. Future investigative activity will focus on Enbridge's inspection and maintenance of the pipeline, HCA determination and public awareness, metallurgical evaluation of the pipe, and Enbridge's emergency isolation procedures. Investigators will also review other inspection anomalies, reportable incidents, and the 2003 rupture.

Parties to the investigation include PHMSA, Enbridge, and Lincoln County Emergency Management.

⁴ Research and Special Programs Administration, Corrective Action Order to Texas Eastern Transmission Corporation, Case CPF 220031018H. (Washington, DC: US Department of Transportation, Research and Special Programs Administration, 2003).

https://primis.phmsa.dot.gov/comm/reports/enforce/CaseDetail_cpf_220031018H.html?nocache=1355# TP_1_tab_2. Accessed August 20, 2019.