



# PRELIMINARY REPORT

## PIPELINE

### Enbridge Inc. Natural Gas Pipeline Rupture and Fire

Hillsboro, Kentucky  
May 4, 2020  
PLD20LR001

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

On May 4, 2020, at 4:36 p.m. local time, a 30-inch-diameter natural gas transmission pipeline owned and operated by Enbridge Inc. (Enbridge) ruptured near Hillsboro, Kentucky. The resulting fire burned vegetation over 5 acres of heavily forested land. (See figure.) There were no injuries, fatalities, or evacuations. About 148 million cubic feet of natural gas was released during the rupture and resulting emergency response blowdown.<sup>1</sup> A parallel pipeline in the same right-of-way ruptured at a location about 100 miles away in Danville, Kentucky, on August 1, 2019. In that 2019 accident, one person died and five nearby residents were injured when a rupture released natural gas and ignited. Preliminary information indicates the two events are not related. The 2019 accident is also being investigated by the National Transportation Safety Board (NTSB).<sup>2</sup>



**Figure 1.** Postrupture fire. (Photo courtesy of Kentucky Public Service Commission.)

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<sup>1</sup> During a *blowdown*, the natural gas in the pipeline is vented to the atmosphere in a controlled manner to lower the pressure in the pipeline to atmospheric pressure (zero gauge).

<sup>2</sup> For more information on the August 1, 2019, accident, see National Transportation Safety Board, *Enbridge Inc. Natural Gas Pipeline Rupture and Fire, Danville, Kentucky, August 1, 2019* PLD19FR002 (Washington, DC: National Transportation Safety Board, 2019).

A member of the public notified Enbridge gas control of the rupture at 4:40 p.m. At the same time, a field technician was notified of the rupture by a friend at 911 dispatch. Gas controllers did not observe any rate-of-change alarms, as Enbridge does not employ the use of rate-of-change alarms on the suction side of their compressor stations.<sup>3</sup> Field personnel isolated the damaged system by closing manual valves at the Owingsville Compressor Station and the Muses Mill Valve Station 44 minutes later.

The rupture occurred at a girth weld and resulted in a crater that was about 20-feet wide.<sup>4</sup> No pipe was ejected by the rupture and no structures were damaged by the ensuing fire. The failed pipeline, Line 10, was a 30-inch-diameter transmission line that transported natural gas between Mississippi and Pennsylvania. At the time of the rupture, Line 10 was flowing north-to-south and was operating at 657 pounds per square inch, gauge (psig), which is within the normal pressure range for this segment during this time of year.<sup>5</sup> At the failure site, Line 10 was the northernmost of three parallel pipelines along the same right-of-way. The failure occurred at milepost 509.9, about 8 miles northeast of the Owingsville Compressor Station. This portion of Line 10 was installed in 1952 and was manufactured by National Tube Works.

In 2018, Enbridge initiated a geohazard management program to identify and assess areas of increased geohazard risk. Geohazard threats encompass a wide variety of geological conditions that can affect the integrity of pipelines, including landslides, sinkholes, frost heave, and earthquakes. On October 9, 2018, the area around the Line 10 rupture was identified as one of these areas of increased geohazard risk. Enbridge planned to remediate the pipelines at that location sometime in 2020 by alleviating strain where necessary and installing strain gauges to further monitor the force on the pipeline.

The NTSB's investigation into the Hillsboro accident is ongoing and will include a metallurgical examination of the pipe, a geohazard causation assessment, and an evaluation of Enbridge's supervisory control and data acquisition alarm management and its geohazard management program.<sup>6</sup> The NTSB also plans to examine data gathered from a rupture that occurred under similar circumstances on Enbridge's Line 10 in Summerfield, Ohio, on January 12, 2019. According to the Pipeline and Hazardous Materials Safety Administration (PHMSA), that rupture was caused by "ground movement overstressing a girth weld to failure."<sup>7</sup> Due to the similarities, the Summerfield rupture may help inform the direction of the NTSB's Hillsboro investigation. Parties to the investigation include PHMSA and Enbridge.

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<sup>3</sup> The *suction side* of a compressor station is the input side. At a compressor station, lower-pressure gas is taken in on the suction side, compressed, and then discharged at a higher pressure on the discharge side.

<sup>4</sup> Girth welds are used to connect two pipes along their circumference.

<sup>5</sup> Line 10 is a bidirectional pipeline with a maximum allowable operating pressure of 936 psig when flowing north to south.

<sup>6</sup> Supervisory control and data acquisition is a system used to control and monitor complex systems, such as natural gas transmission pipelines.

<sup>7</sup> Pipeline and Hazardous Materials Safety Administration, *Enbridge/Texas Eastern Summerfield Natural Gas Release* (Washington, DC: US Department of Transportation, Pipeline and Hazardous Materials Safety Administration, 2019).