Rail defect caused fiery Gainford train crash: TSB

BY ANDREA SANDS AND DAVID HOWELL, EDMONTON JOURNAL FEBRUARY 24, 2015

EDMONTON - Defects in a curving section of rail caused an explosive train derailment and fire 16 months ago in Gainford, the Transportation Safety Board of Canada said Tuesday.

Ultrasonic testing two months earlier had failed to detect transverse cracks developing in the aging rail, which was due to be replaced this year.

“Transverse defects are not very common,” George Fowler, a track and infrastructure specialist with the TSB’s rail and pipeline investigations branch, told a news conference in Edmonton.

“They are probably the worst defect because you can’t see them with the naked eye. Generally, you only find them through ultrasonic testing or if they break in service.”

The derailment occurred about 1 a.m. Oct. 19, 2013, when a CN freight train pulling 134 cars from Edmonton to Vancouver entered a curve in the Gainford siding, travelling at about 38 km/h.

When one or more breaks occurred in the curve’s high rail, 13 tank cars derailed — four carrying crude oil and nine carrying liquefied petroleum gas.

Two LPG tank cars broke open and caught fire. One had its underside punctured by the coupler from another car, causing it to explode in a fireball that stretched across Highway 16 about 90 km/h west of Edmonton. A third tank car released LPG from its safety valve, which ignited.

No one was injured but 138 people were evacuated from 106 nearby homes and couldn’t return for more than three days. One house was damaged by intense heat. Parkland County declared a local state of emergency. Highway 16 traffic was rerouted for days.

Investigators found a rail that had been split by a crack running across it. Lab testing later found 15 other transverse cracks, all caused by fatigue.

Ultrasonic detection tests had been conducted on the Gainford siding four times in 2013. In August, the operator found an indication of a possible internal defect but attributed it to the condition of the rail’s surface.

Surface damage “limited the ability of the ultrasonic test equipment to detect these transverse defects,” Fowler said.

The high rail that broke was marked by visible surface cracks and “chunks of rail falling out,” he said. Made in the 1970s, it had been due for replacement in 2015.

The low rail in the curve had been replaced in March 2013. The new rail sat taller than the worn one it replaced. That put more stress on the high rail, increasing the likelihood of fatigue cracks and other damage.

Replacing only the low rail “obviously ... wasn’t the right decision based on the derailment,” Fowler said.

But the TSB isn’t saying the high rail should have been replaced before the incident, he said.

“Railroads are good businesses. They are not going to replace an asset before they have to.”

In a statement, CN said it has brought in new safety measures, including walking inspections and rail flaw detection retesting on similar sidings across its system.

It now has a rail grinding program — to control surface damage — on all high-speed sidings such as Gainford.