

## **The 7.9 Denali Fault earthquake: damage to structures and lifelines**

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In the early afternoon of Sunday, November 3<sup>rd</sup>, the residents of many interior Alaska towns were shaken up by a magnitude 7.9 earthquake. The shaking lasted an average of three minutes and when it stopped, nearly 300 km of the Denali Fault had ruptured. In the hours that followed, the Alaska Earthquake Information Center (AEIC) fielded reports of structural damage from Cantwell to Tok and other earthquake effects as far away as Louisiana. Upon investigation, the most severe effects were found in the village of Mentasta where basic utilities were interrupted and the school and several houses suffered major damage. Almost 3000 reports submitted to a community internet intensity map show a maximum Mercalli intensity VIII along the eastern end of the rupture area.

The Richardson and Parks Highways, two main north-south thoroughfares in Alaska, both buckled and split as a result of the fault rupture. Traffic was stopped for a few hours while repairs were made. Between the Richardson Highway the Tok Cutoff, a section of the Glenn Highway that connects Tok and Glennallen, the maximum offsets on the Denali Fault were observed.

Designed to withstand a magnitude 8.5 earthquake at the Denali Fault crossing, the 800-mile long Trans-Alaska Pipeline suffered relatively minor damage. According to Alyeska Pipeline Service Company press releases, the pipeline was shut down shortly after the earthquake occurred. Repairs to pipeline supports and engineering evaluations began immediately thereafter, and oil began flowing through the pipeline Thursday, November 7<sup>th</sup>.

Through it all, the AEIC has collected and archived many photographs, emails, and eyewitness accounts of those who experienced the destruction firsthand. We will detail the effects that the M7.9 Denali Fault earthquake had from near and far.