A Richter Magnitude 6.4 (Cal Tech) earthquake occurred at 4:16 p.m. (PDT) on Monday, October 15, 1979. The epicenter was located 10 miles east of Calexico across the border in Mexico on the Imperial Fault. The fault extends from the Salton Sea to the Gulf of California. There were small horizontal and vertical displacements due to the earthquake. The epicenter was southeasterly of the epicenter of the El Centro Earthquake of May 19, 1940, which had a magnitude of 7.1.

Major damage to lifeline facilities occurred along the All-American Canal between hydraulic drops Nos. 4 and 5. This 7-mile reach, in the vicinity of the fault, suffered damage by sloughing of the earth embankment at intermittent sections due to liquifaction, however, no water escaped from the Canal. The Canal flow was reduced (approximately 3,700 cfs to 600 cfs) to allow repair. The small flow was sufficient for water supply for municipal and industrial uses. The Canal was restored to full irrigation demand on October 19, 1979. Minor outages occurred to the electrical system by slapping-wires and pole top transformer fires.

The fossil fuel steam generation station was out of service due to minor damage to station service transformers bushings, cracked piping and oil sloshing over the top of a fuel oil storage tank. Nearly all electric service was restored within one hour.

Transportation lifelines were damaged by settlement of bridge abutments and roadways at the Canal and drain culvert crossings. Minor alignment change in the railroad and ruptured paving in roadways occurred.

Water lifelines suffered damage by broken joints in cast iron water mains in the Cities of El Centro and Imperial. Telephone service was out due to overloaded circuits.