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HDPE SLIPLINE OF A 42-INCH WATER MAIN

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ABSTRACT: In the summer of 2004, a 42-inch water main suffered a catastrophic failure. This failure occurred in a prestressed concrete cylinder pipe (PCCP), which supplies water to an area of approximately 75 square miles in Houston, TX.

Immediately following the rupture, an inspection was made of the failed water line. Observations of the pipe revealed longitudinal cracks along the crown and springlines. Further inspection revealed the existing pipe was unfit to be placed back in service without major rehabilitation for a distance of approximately 25,000 feet.

Because of the need to return water supply to the area before the following summer peak water demand, only ten months was available to design, bid and construct the rehabilitation for 25,000 feet of distressed 42-inch water main.

The selected rehabilitation option involved sliplining the 42-inch existing water main with high density polyethylene (HDPE). Sliplining meant the existing water line could be used as a primary liner, with minimal excavations.

The contractor was able to install approximately 6,000 linear feet of pipe per month, and completed installation of the HDPE sections within four months of notice to proceed. Another two months was spent installing valves, fittings, disinfecting the new pipe and restoring pavement.

By sliplining the existing distressed water main instead of traditional open-cut installation of a new main, the City was able to restore the surface water supply to prior to the onset of the summer peak demand. This method also allowed the City to save an estimated \$2,000,000 in construction cost.