

**CASE HISTORY**

**A SINKHOLE AT THE EGP FUELS COMPANY  
LPG STORAGE TERMINAL  
MONT BELVIEU, TEXAS**

*By*

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**ABSTRACT**

EGP Fuels Company, a wholly owned subsidiary of Enron Corp., operates an underground storage terminal at Mont Belvieu, Texas, with ten active solution-mined storage caverns in the Barbers Hill salt dome. In July of 1993, a sinkhole occurred in the storage well field. Over a period of about 6 hours, the sinkhole became 20 feet deep and 40 feet in diameter. Rapid response and the availability of heavy equipment in the area allowed EGP Fuels to provide temporary artificial support to the pipelines in the near vicinity of the sinkhole.

Investigations were undertaken to determine the cause of the sinkhole and the best method to remediate the disrupted ground. A brine disposal well (in the very near vicinity of the sinkhole) was plugged and abandoned, and a large girder/beam surface structure was designed and constructed to permanently support the surface piping in the event of further significant subsidence.

Monitoring of ground movement in the vicinity of the sinkhole has continued on an annual basis. EGP Fuels commissioned studies to assess the (1) bending stresses in the surface piping, (2) magnitude of the ground deformation in the immediate vicinity of the original sinkhole, and (3) instrumentation system that might be used to provide an early warning for any future subsidence event. An aggressive monitoring effort by EGP Fuels has suggested to date that a new sinkhole at the site is unlikely. However, the monitoring program will continue indefinitely and a continuous monitoring system will be installed if necessary.