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**Numerical Analysis of the Behavior of Pressurized Underground Pipelines
Rehabilitated by Cure-In-Place-Pipe Method**

Abstract:

Due to the humid climate in Taiwan area, the underground pipes are prone to be damaged by corrosion, which could be more severe for the environment with high salinity near the coast. In addition, the arrangement of underground pipelines in Taiwan area is complicated because the installation of those pipelines is short of long-term planning. In this study, the numerical simulation software ABAQUS was used to simulate different geometries of underground pipelines, i.e. straight line and curved pipeline, damaged by corrosion. The stress and displacement behavior was analyzed for scenarios with different internal pressure and surface loading conditions. In addition, the performance of the Cure-In-Place-Pipe (CIPP) on those scenarios was further analyzed. The results suggest that properly installation of CIPP can reinforce the damaged pipe by reducing the stress concentration and reducing the differential displacement.

Key words: underground pipeline, different geometry, corrosion damage, soil-pipe interaction, cured-in-place-pipe.