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Autore	Sinha Sunil K.
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Sommario/riassunto

The research presented in this report was performed in order to
 compile and better understand the state of the technology for
 wastewater pipeline renewal engineering methodologies and
 technologies, focusing primarily on the geographic regions of the U.S.
 A. An extensive literature review was performed, covering conference
 papers, journal articles, vendor literature, and major reports.
 Additionally, detailed case studies describing utility wastewater pipeline
 renewal engineering practices were created using information data
 mined directly from participating utilities. The information gathered
 through literature review and through data mining was compiled and
 synthesized, resulting in the presentation of conclusions regarding the
 state of renewal engineering of domestic wastewater pipelines,
 recommendations for further research and industry needs, and a
 description of trends found. Trends in technology use and practices
 were summarized, cost issues were discussed, and the gaps between
 needs and available technologies were presented. Furthermore, this
 report proposes a standard data structure for utilities to use for
 reporting purposes when performing renewal engineering work on
 wastewater pipelines. The collection of the information presented in the
 proposed standard data structure for utility reporting would provide
 the data needed to greatly improve utility operating processes and to
 more easily direct research toward industry needs.